Cambridge Glass

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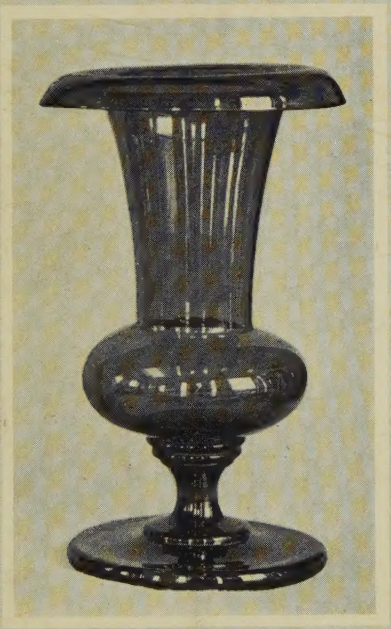
1818 to 1888



By

LURA WOODSIDE WATKINS

Cambridge Glass

1818 to 1888

by

Lura Woodside Watkins

CAMBRIDGE GLASS is the story of the New England Glass Company of Cambridge, Massachusetts, which ran from 1818 to 1888. Although this company is less well known than the Sandwich works, it was at one time the largest glasshouse in the world. Its products were fine blown and cut ware and every type of engraved and decorated glass known in the Victorian era. Its colored glass, especially ruby, was famous.

This book is based on research done by visiting some thirty families whose relatives had been connected with the works, and by studying early newspapers, land records and other documents. By unearthing this information, the author was able to give the New England Glass Company the credit due it for much of our finest early glass and to write an authentic history of an industry once so important. In the years since its first publication, this book has filled the collector's needs and its statements have stood the test of later researches. The illustrations of glass in the book were made from authenticated specimens found in the homes of former workmen.

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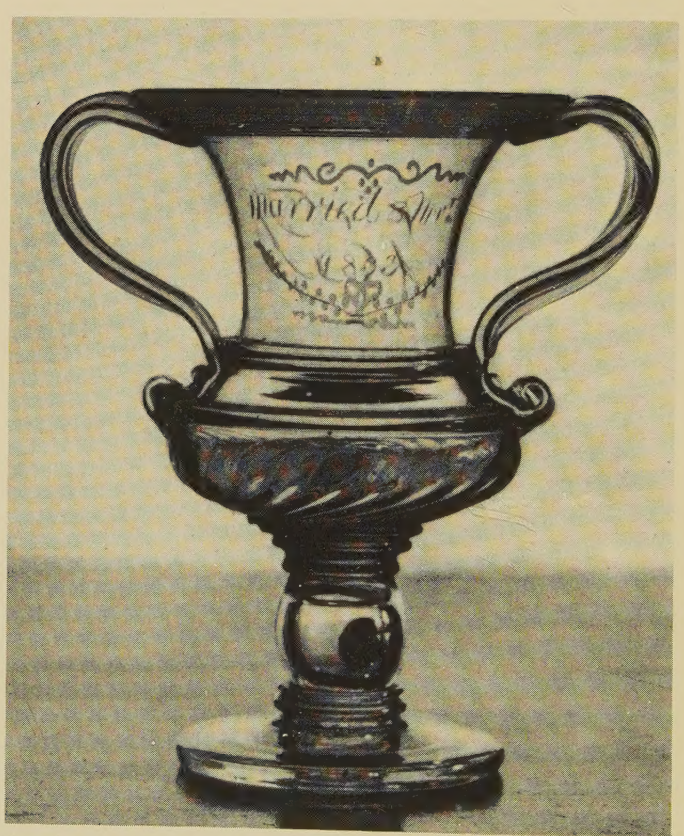
CAMBRIDGE GLASS



Frontispiece

Mrs. W. D. Barker

LOVING CUP — 1833

CAMBRIDGE GLASS

1818 to 1888

THE STORY OF
THE NEW ENGLAND GLASS COMPANY

BY
LURA WOODSIDE WATKINS

BRAMHALL HOUSE : NEW YORK

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(B)

PRINTED IN THE UNITED STATES OF AMERICA

To

MY HUSBAND

WITHOUT WHOSE SYMPATHY AND ASSISTANCE

THIS BOOK COULD NOT HAVE BEEN WRITTEN

FOREWORD

THE history of American industry offers no more absorbing chapter than that which covers the development of glass manufacture from the earliest days, when the Jamestown settlement attempted to produce beads for use in trading with the Indians, to the final quarter of the nineteenth century, when improved transportation facilities ended the need for scattered local glass houses, and the limitless cheap fuel supplies of the Allegheny region placed the less favorably situated establishments of the east at a fatal economic disadvantage.

This chapter naturally divides itself into two parts: the first dealing with the beginning period, during which the fashioning of glass vessels depended primarily upon manual dexterity and a well-controlled breath; the second including the development of mechanical means not only for giving objects of glass their destined shape, but also for simultaneously ornamenting their surface.

It was really not until the advent of this second period that glassmaking in America began to enjoy any assured stability. The machine made possible a large production of wares whose decorative character appealed to popular taste, and whose price placed them within easy reach of the multitude. Furthermore, its utilization placed the ingenious Yankee manufacturer fairly beyond danger of European competition, and offered him a kind of financial bulwark behind which

he could safely conduct the experiments necessary to producing grades of glass calculated to appeal to a market that, if somewhat less profitable than that afforded by the proletariat, could by no means be neglected.

Perhaps better than any other glass enterprise of its time, the New England Glass Company illustrates this dual effort — on the one hand to achieve volume production of a popular commercial product; on the other to vie with foreign manufacturers in the devising of articles of superior metal, and in embellishing them with facile cutting and engraving.

What can hardly be viewed as other than an accident of latter-day publicity has, for some years past, diverted attention from the accomplishment of the more important New England Glass Company to that of the less significant concern founded by Deming Jarves at Sandwich, Massachusetts. As a result, much of the New England Company's surviving ware in the popular field of pressed glass has been credited to the Sandwich factory, while its finer work — some of which displays exceptional excellence — has been virtually ignored.

Mrs. Watkins' careful study, embodied in the following pages, should go far toward correcting this situation. It will assuredly serve to re-establish the historical position of the New England Glass Company. To a considerable extent, it will aid in identifying many specimens of the Company's product, and in distinguishing them from objects of other provenance. Privileged as I am to know how long and arduously Mrs. Watkins has pursued her investigations, how exactingly she has checked the evidence of tradition against documented facts, and, furthermore, with what ingenuity

as well as diligence she has gone about the task of unearthing hitherto unknown information, I am satisfied that the result will prove indispensable alike to the industrial historian and to the collector and student of American glass.

The importance of this work is not measurably affected by considerations of the aesthetic value of late glass as compared with earlier ware. Our admirations will always be guided by our tastes; but taste that is reliable is the offspring of knowledge. Only when we are at least somewhat familiar with the whole field of American glass, the influences which controlled its design and the methods employed in its manufacture, may we fairly express judgment as to the relative quality and desirability of the products of different times and various places.

In greatly extending our glass acquaintance, Mrs. Watkins has contributed her share to developing our powers of discrimination. It is for us to exercise those powers as our abilities and our prejudices permit.

HOMER EATON KEYES

INTRODUCTION

THE writing of this book was inspired by sheer curiosity. Anyone who has tried to get information about the New England Glass Co. from hitherto published works will understand that curiosity. It was satisfied but little by the meagre paragraphs of Bishop and Deming Jarves, quoted and re-quoted in the books on glass-making, and the histories, either local or industrial, offered little more. Knowing that the story of the New England Glass Co. was an important chapter in the annals of American glass-making, and baffled by my inability to discover anything about it in the libraries to which I ordinarily have access, I determined to dig out for myself what I wanted to know.

A lucky inquiry made of a Cambridge woman sent me to Mr. Thomas Leighton, Jr., great-grandson of the man who made the industry what it was in the twenties. He in turn sent me to other members of his family and to friends. This was the beginning of a series of interviews with descendants of New England glass-workers that absorbed much of my time for a year or more. In all I have interviewed some thirty families, visiting many of them several times, and noting on the spot the information given me. These people have been intelligent, well-educated persons, who have been cautious in their statements, while ready to assist me in every way possible. In no case have I been refused the privilege of having photographs made, even when considerable time and trouble was involved for those concerned. I cannot be too grateful to these people who

have helped me so generously. I wish to express my thanks particularly to Mrs. W. D. Barker, Mr. and Mrs. Thomas Leighton, Jr., Mr. John H. Leighton, Mrs. Damon E. Hall, Miss Marion Pike, Mrs. Charles X. Dalton, Mrs. E. H. Skinner, Mrs. Sylvanus L. Fillebrown, Mr. Louis H. W. Vaupel, and Mr. and Mrs. Edward Lowry. I owe also a debt of gratitude to my father, Mr. Charles L. Woodside, who has spent much time and thought in helping me gather material.

Besides obtaining information through interviews and the writing of innumerable letters, I have spent many days in libraries and historical rooms going through files of early directories and newspapers. The advertisements of the company with their definite and priceless facts have been thus laboriously unearthed. Especial thanks is due the librarians of the Massachusetts Historical Society who have aided me with unfailing interest and patience.

The illustrations, except when otherwise noted, are of authenticated specimens of New England glass. As to the book itself, I believe no statement is made in it that cannot be verified (unless it be merely an expression of opinion). Facts have been obtained from original sources wherever possible: articles of incorporation have been copied from the records at the State House; deeds have been studied at the Cambridge Registry; and records of patents looked up specifically. Every effort has been made to have the story accurate as far as it goes. It is only a beginning, but the building of the first steps may make the climb easier for the next investigator.

The drawing of a parallel between the products of the Sandwich factory and those of the New England is inevitable. Up to this time a large part of nineteenth

century tableware has been classed as "Sandwich," and the rest as something else — possibly Pittsburgh. Now it becomes possible not only to pick from the remainder an occasional piece of New England glass, but also to show that probably not more than a third of the so-called Sandwich ware was made in the little Cape Cod town. By this statement I do not intend to belittle the merits of the Sandwich product, especially of the early output of the factory, for which a well-deserved place has been earned by its unrivalled lace glass; but I do mean that another factory equal in size and importance left as great an amount of worthy glass to posterity, different in form, color, and design, and easily distinguished from the ware of other factories. Hitherto the origin of such pieces has been shrouded in mystery, and they have been variously called English, Irish, and so on; but in every case where they bear the least resemblance to Sandwich glass, the Sandwich tag is placed upon them.

If I have been able in any degree to unravel the knot of uncertainty concerning the New England Glass Co.'s products, the writing of this book has been worth while. In expressing doubt as to proper attribution of specimens, dealers and collectors have shown a desire for information on the subject. Perhaps in satisfying my own curiosity, I may also have satisfied that of others.

New information is always forthcoming after the appearance of a new book, and it is my hope that this one will lead to the discovery of authenticated pieces of New England three-section-mold or early pressed glass. I should welcome correspondence concerning such discoveries.

LURA WOODSIDE WATKINS

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CAMBRIDGE GLASS

CAMBRIDGE GLASS

THE STORY OF THE FACTORY

THE New England Glass Company was incorporated in 1818. In order to understand the circumstances that led up to its establishment it is necessary to go back some twenty-five years before that time, and to trace the history of the glass business in Boston during the early nineteenth century. The year 1787 saw the beginning of the first really successful glass works in the United States — the Boston Crown Glass Co. In July of that year the legislature granted to Thomas Walley (Whalley), Jonathan Hunnewell, and some others, the exclusive right to manufacture glass in Massachusetts for fifteen years; and a fine of five hundred pounds was imposed for the infringement of the right. The capital stock was exempted from all taxes and the workmen from military duty. The glass-house was a pyramidal building of brick erected near the foot of Essex Street. For want of skilled workmen the factory was not put into full operation until November, 1792, and shortly afterwards the work was interrupted by a change in the buildings, which had not been suited to the purpose. The brick structure was torn down and another of wood, lined with brick, one hundred feet long and sixty feet wide, put up in its place.

Crown window glass of a superior quality was manufactured. In 1796 the weekly production amounted to

nine hundred sheets of glass; but the business was not successful at first. In the words of Deming Jarves: "This was without success, until a German, of the name of Lint, arrived in the year 1803, and from this period there was great success in the manufacture, for the State of Mass. to encourage the manufacture of window-glass, paid the proprietors a bounty on every table of glass made by them. This was done to counteract the effect of the bounty paid by England on the exportation of glass from that kingdom. The State bounty had the effect to encourage the proprietors and sustain their efforts, so that by perseverance many difficulties were overcome, and a well-earned reputation supported for the strength and clearness of their glass; a glass superior to the imported, and well known throughout the United States as 'Boston Window-Glass.' This reputation they steadily sustained, until they made glass in their new works at South Boston in the year 1822."

On June 17, 1809, Samuel Gore, Thomas Walley, Jonathan Hunnewell, Charles F. Kupfer, and Samuel H. Walley, with other associates, were incorporated as the Boston Glass Manufactory, with a capital of $250,000. The census of 1810 gives the yearly output as $36,000.

Two years after incorporating they erected a large new works on the shore at South Boston. As many workmen from the original factory had been "enticed" away to other concerns in different places, an agent was sent to England to get other glass-blowers. By the time the new men had reached America the War of 1812 had broken out, and for a time the glass business was at a standstill. It was impossible to get the necessary imported materials or to procure fuel. Conse-

quently many glass-blowers were thrown out of work. In those days it was no unusual thing for a workman to be equally skilled as a flint glass maker or a window glass blower. The making of window glass required only manual strength in addition to a knowledge of blowing. So it is not surprising to find these unoccupied men turning their talents in a new direction. One of these glass-blowers was Thomas Caines, called by Jarves the father of the flint glass industry in the Atlantic States. Having a knowledge of the business in all its branches, he persuaded the proprietors to erect a small six-pot flint furnace in their large unoccupied building. Here work was provided for the unemployed glass-blowers, who supplied the market with the glass-ware ordinarily imported from Europe. Thus the flint glass industry that was destined to last directly through the century arose from this window glass factory.

Encouraged perhaps by the success of the South Boston venture, another group of men, Jesse Putnam, Thomas Curtis, and George Blake, got together, and were incorporated February 14, 1814, as the Boston Porcelain and Glass Co., with a capital of $200,000. On March 16, Putnam conveyed to the corporation a lot of land at Craigie's Point, or Lechmere Point, Cambridge, where they erected a small six-pot furnace. This site was in a newly opened section of Cambridge which had been developed by Andrew Craigie. In successive purchases Craigie had secured almost the whole of what is now East Cambridge and part of what is now Cambridgeport. In 1807 he had obtained the authority to erect Canal Bridge, or Craigie's Bridge, from the northwesterly end of Leverett Street in Boston to the east end of Lechmere Point. The bridge was completed in 1809, and roads opened to Cambridge

Common, Medford, and other points, in order to attract travel over this route to Boston. Craigie then proceeded to organize a real estate corporation, the Lechmere Point Corporation, and to sell shares. The land sold slowly, and it was not until September, 1813, that the first really important conveyance was made — one which was destined to bring prosperity to the new village. On that day Jesse Putnam bought the lot which

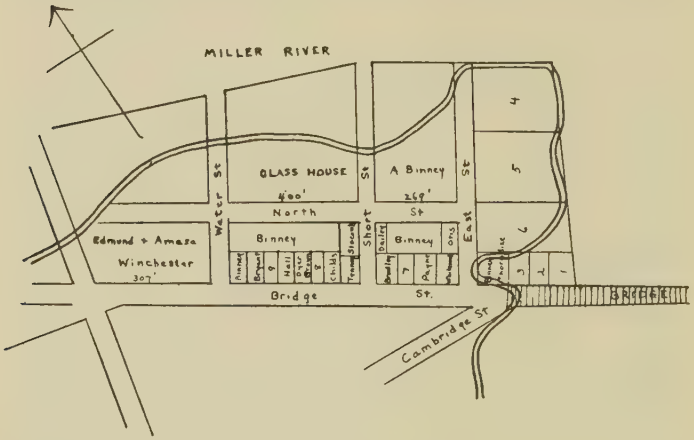


Plate 1

A Tracing from the Fuller Plan of Lechmere Point, 1822

he later turned over to the new glass company. The land "was bounded on East Street 400 feet, on North Street 400 feet, on Water Street 300 feet, and on land covered with water about 400 feet."

Although the factory was built in an excellent location, close to the highway and the waterfront, the company did not flourish. Deming Jarves says that the china department under the direction of a Mr. Bruitan

proved an entire failure for lack of proper materials; and of Mr. Thompson who had built the furnace and brought out a set of workmen at much expense to run it, he says that "he was in no way qualified for the task, nor possessed of the least practical skill or knowledge of the business." In addition to these drawbacks, the stagnation in business resulting from the war was so complete that, as one historian puts it: "Grass grew in the streets, and ships rotted at their wharves." Consequently the whole project was a failure, and in less than a year it was abandoned.

In 1815 the building was leased to a group of men from the South Boston company, who manufactured flint glass for two years under the firm name of Emmet, Fisher and Flowers. "They succeeded for a time very well, and turned out glass suitable for the trade, but want of concert of action prevented a successful result, and they dissolved without loss. The Porcelain Co. discouraged by so many failures agreed to wind up their concern, and in November, 1817, they disposed of their entire property at public auction." [1]

The works were purchased by the New England Glass Co., which was incorporated February 16, 1818. By this act "Amos Binney, Edmund Munroe, Daniel Hastings, Demming Jarvis, and their associates, successors, and assigns" were privileged to manufacture "flint and crown glass of all kinds in the towns of Boston and Cambridge." They were also permitted to be "lawfully seized and possessed of such real estate, not exceeding one hundred thousand dollars in value, and such personal estate, not exceeding two hundred thousand dollars, as may be necessary or convenient for carrying on the manufacture aforesaid."

[1] Jarves, *Reminiscences of Glass Making.*

It is interesting to note the type of men who joined hands in this venture. Three of them were established merchants, while Deming Jarves seems to have been chosen to carry on the practical end of the business.

Amos Binney, known as Col. Binney, was a leading citizen and a man of influence. He was U. S. Navy Agent at the Charlestown Navy Yard for fourteen years, from 1812 to 1826, and he was a trustee and steward of the Methodist Church in Boston. A street in East Cambridge named for him recalls the fact that he once held property there.

Edmund H. Munroe had been a director of the Boston Porcelain and Glass Co. He was a man of many and varied activities and of considerable wealth. He was a banker and broker, with many ships in the India trade. He was also one of the founders of the American Board of Commissioners for Foreign Missions. Seven years later we find him again casting in his lot with the incorporators of a new glass company at Sandwich, Massachusetts, and he was interested financially in two others at a later date. Mr. Munroe was liberally educated and of good family, being descended from the Munroes of Lexington of Revolutionary fame. He was born in that town, October 29, 1780, and died April 17, 1865. His home at this time was in Boston, although he later became a resident of Cambridge.

Of Daniel Hastings we know that he was a Boston merchant and importer, born in 1775. He also had been a director of the Porcelain Co. In the year 1813 he sold crockery ware at 18 Merchant's Row. In 1818 he moved to 44 Broad Street, where he had a wholesale china, glass, and earthenware establishment. His china was imported from England, but no doubt a portion of his glassware was made by the new company. The

Plate 2

Mrs. Damon E. Hall

JAMES B. BARNES, FROM A MINIATURE

Lexington Historical Society

EDMUND H. MUNROE, FROM A PHOTOGRAPH

first ship to come to America from England after the War of 1812 — the British ship "Kingston" — brought a consignment for Daniel Hastings. His home was in Washington Place.

The activities of Deming Jarves are already well known through his connection with the Sandwich factory, which began operations seven years later, and from his invaluable book, *Reminiscences of Glass Making,* although but little is known of his personality or previous history. It is said on good authority that he was born in 1791. In the Boston Directory of 1813 we find him listed as "Deming Jarves, dry goods, 11 Cornhill." Later directories and newspaper advertisements show that he was a member of the firm of Henshaw & Jarves, crockery ware, from 1815–1818. In 1817 he was clerk of the Boston Porcelain and Glass Co., and it was over his name that the meeting was called which decided the question of selling out the company. In 1818 the directory lists him as a glass factor, Belknap Street. This was the beginning of his connection with the New England Glass Co. Henshaw & Jarves no longer appears as a firm, and in 1820 Jarves's name disappears from the directory. He probably went to live in Cambridge at that time. The town records show that he was an assessor there in 1822–3, a selectman in 1823–4, and a representative to the General Court from that district in 1824.

Jarves was only twenty-seven years old when he was made agent — that is, sales manager, or general manager — of the new company. He had undoubtedly had previous selling experience that warranted giving him the position, although it seems to have been his first as a practical glass man. The outcome proved that the choice of this young man was indeed a wise one.

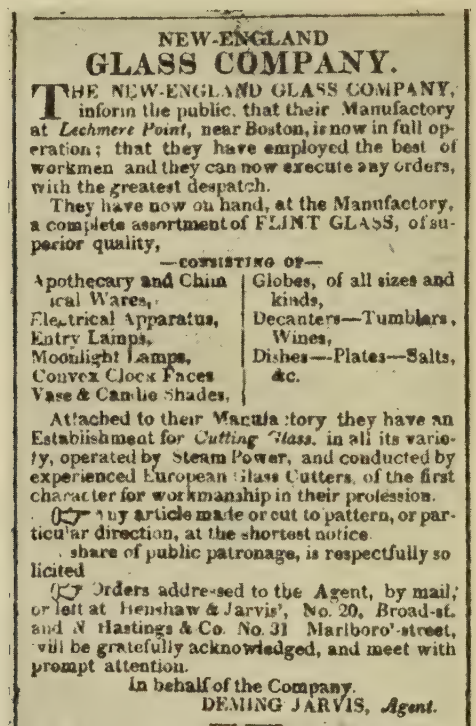
When the property of the Porcelain Co. was purchased it consisted of a building with a six-pot furnace holding 700 pounds to each pot. During 1818 another furnace was built and a cutting department added. There were twenty-four cutting mills, operated by steam power. European glass-cutters, the most skillful that could be obtained, were engaged to do this work. At first only forty hands were employed in the glass-house, the output averaging about $40,000 a year.

In April the company announced by an advertisement in the Boston papers (it appeared April 13 in the *Boston Commercial Gazette,* April 14 in the *New England Palladium,* and April 15 in the *Columbian Centinel*), "that their Manufactory at Lechmere Point, near Boston, is now in full operation; that they have employed the best of workmen and they can now execute any orders with the greatest despatch." There follows a list of articles made (see Plate 3), and the information that orders could be addressed to Henshaw & Jarvis, 20 Broad-street, or to N. Hastings & Co., No. 31 Marlboro-street, or to the agent, Deming Jarvis.

Bishop, in his *History of American Manufacturers,* says that in 1818 the New England Glass Co. was "one of the most extensive Flint Glass manufactories in the country. Two flint furnaces and twenty-four glass-cutting mills, operated by steam, and a red-lead furnace capable of making two tons of red lead per week, enabled them to produce every variety of plain, mould, and the richest cut glass, as Grecian lamps, chandeliers for churches, vases, antique and transparent lamps, etc. for domestic supply, and exportation to the West Indies and South America." The capital at that time was $80,000, and the year's output $65,000.

This immediate increase was due to the enterprise

of Deming Jarves, who seems to have had the gift, not only of turning his own hand to all sorts of construc-



NEW-ENGLAND
GLASS COMPANY.

THE NEW-ENGLAND GLASS COMPANY, inform the public, that their Manufactory at *Lechmere Point*, near Boston, is now in full operation; that they have employed the best of workmen and they can now execute any orders, with the greatest despatch.

They have now on hand, at the Manufactory, a complete assortment of FLINT GLASS, of superior quality,

—CONSISTING OF—

Apothecary and Chimical Wares,	Globes, of all sizes and kinds,
Electrical Apparatus,	Decanters—Tumblers,
Entry Lamps,	Wines,
Moonlight Lamps,	Dishes—Plates—Salts,
Convex Clock Faces	&c.
Vase & Candle Shades,	

Attached to their Manufactory they have an Establishment for *Cutting Glass*, in all its variety, operated by Steam Power, and conducted by experienced European Glass Cutters, of the first character for workmanship in their profession.

☞ Any article made or cut to pattern, or particular direction, at the shortest notice.

A share of public patronage, is respectfully solicited

☞ Orders addressed to the Agent, by mail, or left at Henshaw & Jarvis', No. 20, Broad-st. and N. Hastings & Co. No. 31 Marlboro'-street, will be gratefully acknowledged, and meet with prompt attention.

In behalf of the Company.
DEMING JARVIS, *Agent.*

WANTED—Several GLASS BLOWERS and CUTTERS, to whom liberal wages will be paid
Boston, April 15, 1818.

Plate 3

ADVERTISEMENT FROM THE *Boston Commercial Gazette*, APRIL 13, 1818

tive work, but of selecting the right men to work under him. The story is told of how he secured James B. Barnes for his engineering projects. Mr. Barnes was

a skilled draughtsman and engineer who had received his education under the famous Fennel of London. He had come to America a few years before, first to Halifax, and now to Boston. One day, when taking an airing with his children on the Common, he was accosted by Deming Jarves who seemed to know him. Jarves told Mr. Barnes that he was just the man he was looking for, and that he wanted him to come to work in the new factory. This was a good opportunity which Mr. Barnes was glad to accept. He went to work there in 1818 and designed and superintended the construction of the first furnaces and pots. In later years James B. Barnes became one of the founders of Hobbs, Brockunier & Co. of Wheeling, West Virginia.

He may have been the person mentioned by Jarves in the following passage from his *Reminiscences:*

"The writer believes he was the first person in the United States, aided by a director of the New England Glass Company, to build a lead furnace. This was in 1818. His only guide was a volume of Cooper's 'Emporium of Arts and Sciences,' which furnished a plan on a very limited scale.

"The furnace proved successful, and enabled the Company to continue their manufacture of glass at a period when no foreign red lead was to be procured. They enlarged their works, until they have become the most important in the country; while for over thirty years they monopolized the business in all its branches, from the highest quality of pure Galena and painters' red lead to common pig lead."

As noted before, this furnace was capable of making two tons of red lead per week. It was so well built that it stood in practically its original form until the factory was torn down more than one hundred years later.

The connection of Deming Jarves with the New England Glass Co. lasted only until 1825 when he left to supervise the construction of the new glass factory at Sandwich. It was said by a contemporary [2] that he left on account of a difference of opinion with the directors of the New England. Henry Whitney succeeded him as manager or agent — a position that he retained for nearly twenty years.

Plate 4

View of East Cambridge, Showing the Glass-Works, from Barber's *History of Massachusetts*, 1841

The business, started thus on a successful basis, continued to flourish. In 1823, according to Bishop, the population of Lechmere Point had grown to more than one thousand persons — an increase that he ascribes to the manufacturing and provision establishments. In the glass-house, cutting house, and other departments of the factory 140 workmen were constantly employed. Every week more than ten tons of glassware, much of

[2] William Cains.

it beautifully cut, was sent to Boston and other places for sale. The yearly sales now amounted to $150,000.

The early success of the New England Glass Co. may be largely attributed to the skillful management of Thomas H. Leighton, who came to it as "gaffer," or superintendent, in 1826. He was the father of seven sons, all but one of whom were glass-workers, and one a superintendent in later years. In a later chapter the story of this interesting family will be told in full; but it is impossible to outline the history of the works without mention of the Leighton name. Their connection with the company is an instance of the fact that the New England always recruited the most skilled workmen for every part of the business, most of them coming at first from England and Scotland.

In 1825 the company exhibited at an exposition of manufacturers in Washington. The following notice appeared in the *Evening Gazette* of Boston on May 7:

NOTICE

The elegant Cut Glass Bowl, manufactured by the New-England Glass Company, and exhibited in the Capitol, at Washington, at the late exhibition of manufactures, may be seen for the present at their Warehouse, No. 140, Washington-street, near the Old South.

Two years later a silver medal was awarded to the company by the Franklin Institute of Pennsylvania as a "reward of skill and ingenuity."

Theodore F. MacManus in a little book entitled *A Century of Glass Manufacture,* published by the Libbey Glass Co. in 1918, says: "As far back as 1832 that company" (the New England) "had been sending fine pressed glass to England; London taking in that

year pressed and cut table ware to the value of one hundred pounds sterling." Mr. MacManus does not give his authority for this statement, but it seems to be substantiated by the fact that the Boston and Sandwich Glass Co. was exporting glass at an even earlier date. They advertised " glass for exportation put up at short notice " in the *Boston Commercial Gazette* of January 21, 1828. No doubt the early pressed products of these two factories were a novelty in England, where the pressing-machine had not then been introduced.

It is known that the New England Glass Co. had agencies in New York, Philadelphia, and Baltimore at this time — an indication that the young company was expanding its sales territory to a degree unusual in those times.

A display of the products at the fair of the Mechanic's Charitable Association is noted in the *Evening Gazette* of September 23, 1837. Unfortunately for us the reporter seems to have been unequal to the task of describing it.

" Display of glass, by the New England Glass Co. We hardly know what to say of this splendid exhibition. It attracted much attention. Every variety of glass for the use of families, is made by this Company."

The statistical tables for this year show that the two glass factories in East Cambridge (presumably the New England and the New England Glass Bottle Co.) were making glass to the amount of $453,076 annually. The capital invested was $450,000 and 290 hands were employed.

In 1846 John H. Leighton made a plan of one of the furnaces. At that time there were three: the Etna,

Plate 5

Lexington Historical Society

MEDALS PRESENTED TO THE NEW ENGLAND GLASS CO. — 1860 — 1827 — 1875

the Vesuvius, and the Trio, as they were called by the workmen; and they were built in the order named. Mr. Leighton's note which accompanied the plan read: "Dim. inside of the Pillars 13 ft. 10 in. 8 Arches 42 wide and 42 high. 2 Arches 50 wide and 42 high." In the fall of 1926 Mr. Leighton's grandson, John H. Leighton, who remembers these furnaces, found a circle of brickwork corresponding to these dimensions on the site of the old factory. This may be considered the last trace of the old buildings, which stood on the land now covered for the most part by the Boston & Maine R. R. tracks.

By the middle of the century the New England had reached the beginning of its period of greatest prosperity. In 1849 the capital was $320,000, distributed in 800 shares of $400 each. Two years later it had been increased to $400,000, on which a semi-annual dividend was paid, and so desirable were the shares and so large the profits that they were almost never found on the market. It was said to be the largest glass manufactory in the world.

At this date 450 hands were employed in and about the factory, and five furnaces of ten pots each, with an estimated capacity of 2000 pounds to the pot, were in use day and night. Four years later we learn that the employees numbered 500, with a yearly payroll of $197,600, while the annual output was not less than a half a million dollars.

A description of the factory at that time will give some impression of the large scale on which it was conducted.[3] The buildings stood on a lot 542 feet long by 378 feet wide. Viewed from any angle they were a landmark on account of the huge chimney 235 feet

[3] *Ballou's Pictorial,* January 20, 1855.

Plate 6

VIEW OF THE GLASS-WORKS FROM *Gleason's Pictorial*, 1851

high — actually ten feet higher than Bunker Hill Monument. This chimney was twenty-four feet in diameter at the base and fifteen feet at the top. Upon its completion in 1851 a celebration was held. A banquet was served to the officers of the company, and fireworks were set off from the top of the structure. Such a high stack was necessitated by the arrangement for firing and draught peculiar to the New England glass-house. English glass-houses were commonly large conical buildings, sixty to one hundred feet high, and fifty to eighty feet in diameter. The furnace was in the center over a large vault, the draught being provided from the vault below through a grating in the furnace upon which the fires were built. In the East Cambridge works, however, there were no tall cones over the furnaces, and the draught was created solely by the high chimney, which was connected by flues with every part of the factory. These flues were of brick laid in cement, were about fifteen feet in diameter, and led underground from every furnace in the plant to the central nine-foot flue in the big chimney. In this way the smoke and gases were carried from the leers and kilns, and even from the blacksmith's shop, and let off into the upper air at such a height that the surrounding atmosphere was kept free and clear.

The factory appears to have been at that time the only one in the world where the furnaces were fed from underneath. The plan had the additional advantage of keeping the workrooms free from coal dust and from the inevitable interruptions resulting from the shoveling of coal into the furnaces between the pots, right where the blowers were at work. Plate 7 shows the "teasers" (tiseurs) at work. One of the side flues opening out of the furnace may be plainly seen in this

"TEAZING" THE FIRES.

Plate 7

WOODCUT FROM *Ballou's Pictorial*, JANUARY 20, 1855

GLASS-BLOWING DEPARTMENT.

Plate 8

Woodcut from *Ballou's Pictorial*, January 20, 1855

ELEVATED RAILWAY AND BASE OF CHIMNEY.

Plate 9

Woodcut from *Ballou's Pictorial*, January 20, 1855

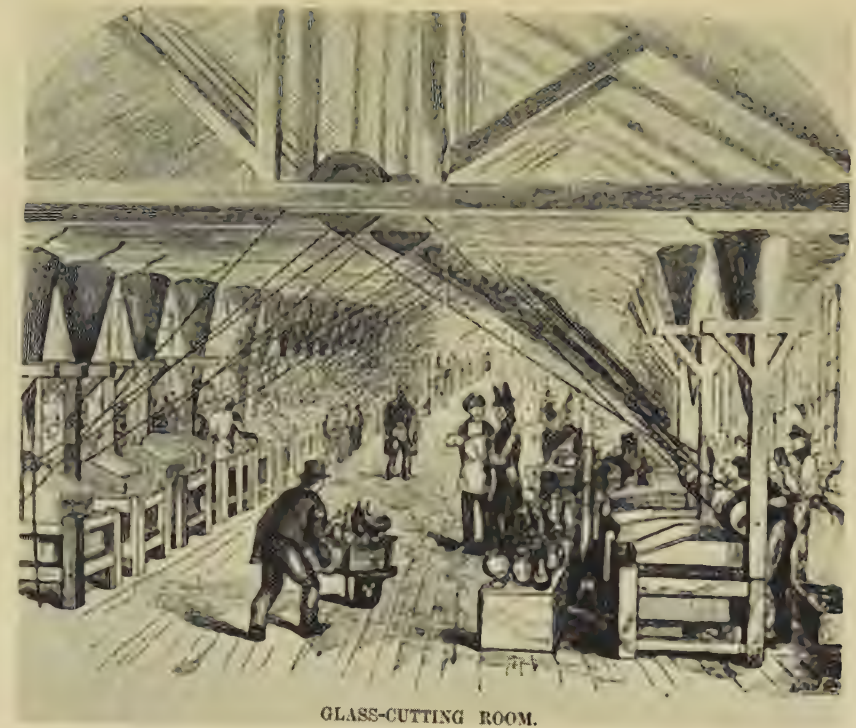
picture. Thirty laborers were needed for this work and for shoveling the immense quantities of Cumberland coal.

Plate 8 shows the interior of the main building. This room had a brick floor and its groined roof was supported by iron columns. It contained four large furnaces and the annealing leers and kilns, and was the center of activity for the blowing, pressing, and finishing. The glass-blowers worked here in little groups known as " shops," consisting of a gaffer or foreman who finished the work, a " servitor," or helper, under him, who did the actual blowing, and two boys, who assisted the more experienced workmen.

In the picture of the yard the base of the great chimney is seen clearly, and overhead the railroad where the glass was conveyed from the main building to the cutting shop and thence to the packing room on the next floor — an immense room 370 feet long. The cutting room was 270 feet in length and contained eighty frames for cutting, polishing, and engraving glass. This department gave employment to about ninety men. The machinery was operated at this time by a new eighty horse-power steam engine that had recently been installed by Corlis & Nightingale of Providence.

The picture of the showroom is an ambitious attempt to give an idea of the quantity and variety of objects displayed there. A careful inspection will show compotes, decanters, vases, bottles, and more especially a great number of lamps, lanterns, and lamp chimneys. The room was 140 feet long and high in proportion.

There were many other important departments connected with the factory. Twenty men were needed to work around the lead furnace. Two and a half million



GLASS-CUTTING ROOM.

Plate 10

WOODCUT FROM *Ballou's Pictorial*, JANUARY 20. 1855

pounds of lead were prepared here annually, as the company still monopolized this business, which was the most important of the kind in the country. The pig lead was brought from Missouri and converted into red lead and litharge, both for glass-making and for other purposes. In the process of working the material the men tramped it with their feet, thus exposing themselves to the dangers of lead poisoning. It was indeed a dangerous occupation.

The clay for the pots was prepared on the premises. Some dozen men were constantly at work in this department. Three hundred and fifty tons of clay were used every year, and it was prepared by treading, grinding, and mixing. Pot-setting was a weekly task in the glass-house. Friday mornings the fires were allowed to go down for the weekly holiday, which lasted from Friday noon to midnight Sunday. (During the week the men worked continuously in six-hour shifts.) With the change in temperature some of the clay pots were almost sure to crack, making it necessary to replace them with new ones.

The laboratory building was of brick, three stories high, and was 135 feet long and forty-five feet wide. The lower floor was devoted to the preparation of potash, sand, and other materials of which the glass was made, and to a blacksmith's shop. The actual mixing was done on the second floor. On the third floor was a machine shop where molds, presses, etc., were made, and a trimming shop for the manufacture of trimmings for lanterns, jars, bowls, and other objects. There was also a department on this floor for cleaning molds, where about twenty-four persons, both men and women, were employed. In all, about fifty hands were needed in this one building.

SHOW ROOM OF THE GLASS WORKS.

Plate 11

WOODCUT FROM *Ballou's Pictorial*, JANUARY 20, 1855

Another three-story brick building 140 feet long contained packing and ware rooms. In these departments and in the selecting rooms adjoining twenty-five persons found employment. Women were also included on the payroll in this work, as may be seen in the picture of the salesroom. Ten men also worked at the business of silvering, gilding, and ornamenting the glass.

This prosperous state of affairs continued up to and even during the period of the Civil War. In 1855 the *Massachusetts Statistical Tables* gives the value of glass manufactured in the two Cambridge factories (the New England and the Bay State) as $620,000, and the hands employed 531; in 1865, the value of products was $896,650, and 653 hands were employed. The Bay State was a comparatively small establishment, and only a fraction of these figures applies to that concern. The property of the New England glassworks had increased in value as well. The taxes paid the town of Cambridge had risen from $630 in 1850 to $2750 in 1863.

The first check received by the New England Glass Co. in its expansion was the result of a discovery made by one of its former employees, who was for a short time its superintendent, William Leighton, son of Thomas Leighton. William Leighton had always been devoted to experimentation in glass chemistry and to devising new formulae for mixing glass. In the winter of 1864, while connected with the firm of J. H. Hobbs, Brockunier & Co., of Wheeling, West Virginia, he conducted a series of experiments that resulted in a successful formula for lime glass. Up to this time tableware had been made of flint or lead glass, which was of course a superior metal. Lime glass, however, had the advan-

tage of being about one-third or one-quarter as cheap as flint glass. Factories all over the country immediately seized upon this means of producing articles at low cost and greater profit to themselves. Lime glass has the property of cooling more quickly than lead glass, and quicker finishing processes are necessary in handling it. Mechanical ways of meeting this necessity were soon invented, and its manufacture was established.

The flint glass factories were faced with the tremendous problem of meeting competition in this field. Should they adopt the new methods, or stand by the old ones? The New England decided not to lower its standards, and to continue making only flint glass of the highest quality. Even in its own territory the company was made to feel the pressure of competition. In 1870 the Pittsburgh Glass Manufacturers established an agency at 10 Milk St., Boston, where they took orders for "Flint, Crystal & Lime Crockery & Glassware, Kerosene Lamps, etc."; and two years later a Western Glass Agency was opened at 27 Doane St. For a time the New England did not suffer materially, but after a few years other conditions arose that contributed to their decline.

In 1872 Mr. William L. Libbey became the agent of the company. He had received his training in the glass business with the firm of Jarves & Cormerais, who in 1850 became the owners of the Mt. Washington Glass Co. This factory had been started in 1837 by Deming Jarves for his son George D. Jarves. Mr. Libbey during the sixties had been agent and part owner of the Mt. Washington, and he came from them to the Cambridge company. His son, Edward D. Libbey, entered the business at the same time as a clerk.

The younger Libbey was destined to become one of the most successful glass manufacturers the country has ever known and to have a profound influence on glass-making the world over. He was a man of the highest character and of remarkable executive ability. After his beginning at the factory he left the works for a course of study at Kent's Hill Academy, Maine, only to return in 1874 to the glass business, where his particular talents seemed to lead him.

During the seventies the New England Glass Co. was noted for its cut and engraved products. The clear crystal glass and the elaborate style of its decoration attracted attention both here and abroad. In 1876 the company sent a most remarkable display of this ware to the Centennial Exhibition at Philadelphia. Heretofore there had been little demand for cut glass in the west and south. By their exhibit a new interest was aroused in this type of glass and a new market was created by the visitors who came from all parts of the country. In this respect their decision to continue the manufacture of flint glass was vindicated. Competition in the cheaper glass was so keen, however, that the firm kept losing ground financially.

The story of the New England in the seventies is, in fact, one of storm and stress. In 1875 one of the shareholders, Uriah Atherton Boyden, charged the officers and directors of the company with mismanagement. He said the annual reports were written so ambiguously that they were misleading; that they were not properly signed nor sworn to; that directors' meetings were held irregularly, and reports to the State and to the stockholders did not always agree. Finally he charged dishonesty, and said he wished to dispose of his fourteen shares. It is true that the company had lost money in

Plate 12

EDWARD D. LIBBEY

WILLIAM L. LIBBEY

FROM PHOTOGRAPHS MADE ABOUT 1875

1872 and 1873; and in the following year a committee of investigation had advised the company to cease manufacturing. Furthermore, there was leakage in the glass-house resulting from dishonesty among the workmen. Blowers who had always been allowed to make pieces for presentation carried away quantities of things which they sold for their own profit. Articles disappeared from the salesroom in the same way. Mr. Boyden concluded his charge by showing how with proper management the business could be operated at a profit.

The company, although momentarily threatened with failure, did indeed come to some arrangement, and continued operation. Many of the best workmen were obliged to seek employment elsewhere. Numbers went to New Bedford and others to the newly established Meriden Flint Glass Co. in West Meriden, Connecticut. Among the latter were Henry S. Fillebrown and Henry Leighton, two of the company's most expert engravers. Letters from Mr. Leighton to his family throw some light on the conditions at the time. On January 16th, 1877, he wrote:

"Yesterday afternoon Cram made his appearance (one of the New England engravers) and is going to work here as soon as his machine arrives and is put up — He left the N. E. last Friday and says that last week his earnings amounted to $7. He was the best engraver they had at the time he left and now the most work they have is cheap cruets."

At the same time he wrote:

"I saw two orders today from New England customers which the packer showed me, and they are now sending off a great deal of ware."

In April a letter to his sister seems to indicate that the New England was about to close:

"The New England has at last concluded to close as I expected it would and I am glad none of our family were in it at the downfall. — Everybody seems to regret that such a thing should happen as we are ac-

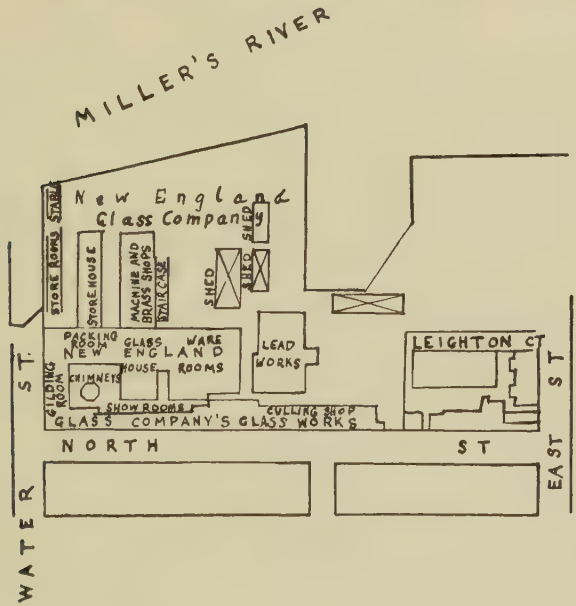


Plate 13

TRACING FROM THE ATLAS OF CAMBRIDGE FOR 1873

quainted with many to whom it will be a sad misfortune, more so from the low state of business at present, and I think a very few will find work here."

The factory with all its buildings and materials was in fact put up for sale that very month. In the following year the report of the annual meeting of the Boston

and Sandwich Glass Co. complained that the New England Glass Co. had gone into bankruptcy and glutted the market, thereby reducing the sales of the Sandwich concern. This statement was vigorously denied in the press by the Cambridge company, which

Plate 14

ONE OF THE SHOWROOMS IN 1875

announced that it was out of debt and that the works had been leased to Mr. Libbey.

Just at this time, when affairs were going badly, an accident occurred that caused no little expense. One afternoon without warning the iron roof of the great

furnace room fell in with a crash, startling the residents in the neighborhood. Fortunately the room was empty, so no lives were lost. The accident was said to have been caused by a spell of extremely cold weather,

Plate 15

THE LARGE SHOWROOM IN 1875

which contracted the trusses and girders so that they fell out of their sockets.

Meanwhile, glass manufacturing in Cambrige was almost at a standstill. It must be remembered that successful production was becoming increasingly difficult in the east on account of the inconvenience and

expense of procuring fuel. The Massachusetts glass-houses were still burning coal brought from long distances, while the Ohio and Pennsylvania factories used the oil and natural gas that were near at hand. This one factor more than any other figured largely in the

Plate 16

THE LARGE SHOWROOM IN 1875

causes that finally led the company to abandon the industry in Cambridge.

The end had not come yet, however, although the directors had nearly exhausted their resources. Temporarily they sought a solution of their problems by

leasing the works to Mr. Libbey. This occurred in 1878. Joseph D. Weeks in the Tenth Census Report notes that at that time one furnace of ten pots was running and three furnaces were idle. Thus Mr. Libbey kept the business going, though not at full capacity. He continued the manufacture on the same lines as before, maintaining always a high standard of excellence and bringing out many new things in colored glassware to meet the demands of the trade. In 1880 his son became his partner, and thereafter the company was known as the New England Glass Works, Wm. L. Libbey & Son, Props. When William L. Libbey died in 1883 the younger man became the head of the firm.

These later years of the glass company were marked by strikes and unsettled conditions among the workmen. A union headed by Andrew Long, one of the skilled blowers, had been formed, and its demands finally led to the closing of the factory. Strikes took place simultaneously in thirty eastern glass-houses. They were instigated by western members of the Glass-makers' Union, tacitly supported by the western manufacturers, who saw that their interests were furthered by such a move. The trouble arose with the lamp-shade blowers, who were easily persuaded that they ought to receive as high wages as the western blowers. Mr. Libbey objected that the men were receiving nearly the same wages as three years before while lamp-shade prices had fallen to about one-third their former amount in order to meet western competition. He would be glad, he said, to discontinue that branch of the work, and he hoped that the union would not order a general strike of his three hundred employees on account of the demands of a handful of lamp-shade blowers, since

there was no widespread dissatisfaction among his workers. The company was not making money at the time, and he did not see how it could go on with increased expense. It would be necessary to close down the works for six months and to throw the whole force out of employment. The sixty glass-blowers, nevertheless, refused to go back to work until the strike had been ended by conferences. Mr. Libbey told the men if the fires were let down again they would never be re-kindled in that factory. The event proved that this was no idle threat. When another strike occurred in 1888, Mr. Libbey shut down the works and moved to Toledo, Ohio. With him went about one hundred of the workmen, Andrew Long included, and many of the officials of the company.

The business was carried on with great success in Ohio as the Libbey Glass Co. It has continued to produce the finest cut and engraved glassware in the country and to maintain the traditions of the New England. Mr. Libbey also organized the famous Owens Bottle Machine Co., which has made it possible to manufacture bottles mechanically with the greatest speed and precision.

The closing of the factory showed that the company was in debt to the amount of $40,000. It remained idle for two years, but on September 18, 1890, the New England Glass Co. surrendered its charter, and the manufacture in East Cambridge was never revived. The plant was sold in 1894 to the West End Street R. R. Co. The buildings were rented out for various purposes, and were eventually torn down. The great chimney stood until July 1, 1921, when that, too, was razed. An account of its downfall appeared in the *Cambridge Chronicle:*

"With an almost imperceptible tremor, the octagon shaft of 1,055,754 bricks, weighing 3431 tons and 240 feet in height — taller than Bunker Hill monument — gave way at 3.10 P.M. under the chisels and mallets of Swift-McNutt company workmen, who had been hewing at its base for more than a week, and crashed down amid clouds of dust and mortar, in the direction of Miller's river.

"Its fall had been expected for an hour before it occurred, and the workmen had been removed to the safety zone, leaving Foreman George O'Brien to deliver the final blows. Again and again the shout went up that it was going. Photographers and officials within the danger zone scurried to safety, only to find that someone had had an optical illusion.

"When the huge chimney finally toppled over toward the river, vigorous cheers went up and the multitude swarmed out and over the ruins. Many took home souvenir bricks, and a few lucky ones made away with pieces of the copper lightning rod.

"The chimney was of unusually thorough construction, and according to J. B. Ducheman, of the company in charge of demolition, the methods used in laying the bricks themselves are not equalled in this generation. Mr. Ducheman said that there had been considerable argument as to the quality of the cementing substance used in the chimney, as to whether it was genuine cement, some authorities saying that the people of 1851 did not use cement. He declared that no doubt remained after his six workmen commenced to chip at the base of the great shaft, for the difficulty in hacking half way through its base demonstrated that the highest quality cement was used in its construction."

The tracks of the Boston & Maine R. R. cross the

former site of the glass company. Every vestige of the once great industry has disappeared, and it lives today only in the memories of those formerly connected with it, and in the beautiful glass created there by the workmen of another century.

MATERIALS AND CHARACTERISTICS

FROM its very beginning the New England Glass Co. depended upon American materials almost entirely. On account of the War of 1812 and the embargo put on the exportation of English flints, which had been considered necessary for a good flint glass and could not be found in America, the factories had been obliged to look for a substitute nearer home. Their supply of sand, previously brought from Demerara as ballast, was cut off for the same reason. Plymouth Beach, and Morris River, New Jersey, furnished sand for a time, though not of the best. By 1850 the exceptionally fine Berkshire sand from western Massachusetts had become available as a source of supply. This sand was thoroughly washed, sifted, and packed, and delivered ready for use to glass factories far and near. At the London Exposition of 1851 the English firm of Thomas & Son exhibited a quantity of remarkably beautiful clear glass made from Berkshire sand, saying it was the finest they had ever used. This fine white sand was an ingredient of the glass made at East Cambridge, and its presence in the metal may account for the crystal-like purity of the product.

As we have noted before, the New England Glass Co. made its own lead — an essential part of the best flint glass. Lead glass is a silicate of potash and lead and may be distinguished from lime or the common flint by its greater weight and metallic ring. Practically all of the New England glass is lead glass, whether plain

blown, engraved, cut, or colored. Lime glass was made to a limited extent in the later period of the factory when the cheaper metal had largely superseded lead glass in other glass-houses; but so little of it is found in comparison with the finer metal that it may be discounted as the ordinary material of New England tableware. Lime glass was used for pressing or for chemical ware, when it was used, although druggists' goods and bottles were more often made of good lead glass.

The first pot-clay may have been American, but it is certain that after a time the clay was imported from Stourbridge, England. The New England Glass Co.'s pots were made at the manufactory. Pot-making is one of the most tedious and delicate operations in a glass-house. The clay is mixed into a thin paste with water and one-fifth to one-fourth of its weight of finely ground "pots-herds," or old pots, and kneaded by tramping with the feet until it is of the consistency of putty. The mixture is then formed into long rolls from which the pots are built up layer by layer. It is necessary to cover them and allow them to dry between each layer, and to dry them after they are finished from four to eight months. The completed pot is about four inches thick and somewhat over a yard in diameter. Jarves says the New England pots held 2000 pounds each. Flint glass pots are usually covered at the top, with a small square opening at the side, while bottle glass pots, needing less protection from the impurities of the furnace, are open: hence the term "open-pot" glass.

Setting a pot is a ticklish performance. The vessel is heated gradually in the annealing oven until it is of furnace temperature. It will easily be seen that adjust-

ing such a large heated object over a raging fire requires the greatest skill in handling. Since a certain amount of breakage is expected every week when the fires are allowed to cool, a constant supply of pots is kept on hand. Occasionally a pot full of batch cracks and much valuable material is lost.

The fuel for the glass factory was of necessity brought from Virginia and dumped from the ships directly at the wharves of the company. The disadvantage of bringing fuel from long distances was a most serious one, and one in which all the Massachusetts factories shared alike. It finally killed the industry in this state, and practically all the glass-houses removed their business to Ohio near the supply of natural gas and oil. Glass-making in and around Boston is now carried on by only one or two minor concerns.

From the beginning to the end the New England Glass Co. produced a glass equal to the finest made in any country. Whether an article was intended for table use, for decoration, or for some serviceable purpose, it was invariably made of a glass of crystal clearness and purity, without bubbles or flaws, beautifully finished, smooth to the touch and to the eye. Only the earlier pieces are pontil-marked. To have this rough scar seems to have been the accepted practice at the time, but as the cutting and engraving became more elaborate each piece was ground off on the bottom. Pressed ware was fire-polished into smoothness and rough edges ground down.

Whitworth and Wallis, writing in 1854 a report to the British Government on the Industrial Exhibition in New York, said: "The glass when manufactured is very clear and pure in colour, the pressed work being remarkably smooth, even, and free from *striae*. The

designs and forms are generally well adapted to the material and mode of production." In short, the New England glass was the output of the most skilled workmen, expressing themselves according to the highest standards of art of the day.

This cannot always be said of Sandwich glass. Many of the decorative pieces from that factory are extremely crude. Pontil marks were left on blown articles as late as the eighties. Staining and gilding, as, for instance, on toilet-bottles and vases, was often done in the most slap-dash manner. Neither the material, which was largely lime glass, after the better early period of the factory, nor the finish, can be compared with the East Cambridge product.

It is true that the New England Glass Co. paid less attention to the cheaper pressed ware than its sister and rival at Sandwich, especially in the late period when the Sandwich company was turning out quantities of such glass; but it is making a conservative estimate to say that fully one-third of the pressed glass of the mid-nineteenth century now to be found in antique shops in New England came from Cambridge. The New England tableware may sometimes be recognized as being lead glass, where other factories used lime glass for the same patterns. Whale-oil and fluid lamps were made of lead glass both at Sandwich and at Cambridge. They are said to be indistinguishable. Designs were freely interchanged and even receipts passed from one factory to the other.

It was in the more elaborate work that the superiority of the New England glass was displayed. Anyone who has handled the finer things made there must realize that some of this work has never been surpassed in any factory in any country. Produced in an era that

is notable for the scarcity of its artistic output, it shows beauty of line, form, and color, and is decorated with dignity and restraint. In fact, its comparative simplicity in the Victorian age of gew-gaws is one of the tests of its worth.

The early New England glass was plain blown, molded, pressed, cut, and engraved. Later, other means of decoration were employed, such as staining, etching, transfer-printing, enameling, painting, and so on. A brief resumé of methods may be helpful.

Blown glass is made by taking a gathering of molten glass on the end of the blow-pipe — a hollow rod about four feet long — and inflating it with the breath to the desired size. The bubble is then whirled and patted into shape.

Molded glass is also blown glass (not pressed) that has had a pattern impressed upon it by blowing the bubble into a mold on which the design is cut intaglio. On account of the difficulty of withdrawing hollow objects after molding, the molds were hinged in two, three, or even four parts: usually two in the case of flasks, and three for decanters, flips, mugs, or pitchers. Hence the term three-section-mold glass. This type of glass may be distinguished from pressed glass made in three-section molds by the fact that the pressed glass is smooth inside, while the blown glass follows the pattern out as the material was blown against the mold: that is, it is concave inside where it is convex outside, and vice versa. This method of blowing, while not peculiar to America (it was used in ancient Egypt), has persisted here to a greater extent than in Europe, so that some it is an exclusively American product.

Pressed glass, at first shaped crudely with some sort of a hand-stamp, was later made by a machine.

Plate 17

Mrs. W. D. Barker

Early Blown Clear Glass

A gathering of glass nicely calculated to the right amount is inserted in the mold, and by the operation of a lever a plunger drops upon it, forcing the molten metal into every part of the mold. In some cases the pattern is on the plunger, leaving the design on the inside of the object instead of on the outside. In the case of hollow ware the molds are hinged, or so constructed as to open on one side, making withdrawal possible.

Cutting is done by holding the object to be decorated against an iron wheel that revolves by machinery. A mixture of sand and water is fed on to the wheel from above as required, to assist in the process of grinding. The smoothing off is done against a sandstone wheel fed with water alone, and the final polishing is given against a wooden wheel supplied with emery, and lastly with putty powder.

Engraving is a process of grinding, too, and is accomplished by the use of copper disks revolving in a lathe. As many as two hundred different sized wheels are employed by skilled workmen. It is a style of ornamentation well suited to making pictured or highly decorated surfaces. Good work shows variety of depth, giving the effect of perspective, and the greatest nicety of detail.

In etching the pattern is bitten out by the action of hydrofluoric acid, the rest of the surface being protected by a coating of wax or a pitchy compound. The following receipt for an etching acid was found in the note-book of Mr. Henry S. Fillebrown:

"Acid for Etching Lead Ruby or Blue Glass
2 parts of Fluoric Acid
1 part of Sulphuric Acid
½ part of Water

"When first mixed this acid is *very hot* and must be thoroughly cooled or the work will be spoiled.

"When this acid is almost played out it can be used for Ruby or Green."

Frequently the whole surface of a piece of glass is subjected to the acid, and a dull satiny sheen is the result. This was a common process at the New England Glass Co., especially in the seventies and eighties, when it was used on toilet bottles and other decorative ware. A quick method of etching by machinery was invented and tried out at the New England, but rejected on account of the difficulty of keeping the dies clean.

Transfer-printing was employed during the late period, not only in the glass-house but also in the home, where many an object was embellished by the addition of decalcomania pictures. Articles of white (opal) glass, resembling china, were made for the express purpose of home decoration. Thomas Gaffield, the noted authority on glass, after a visit to the glass-works one morning in March, 1873, wrote in his journal a description of this process. He said that Mr. Libbey showed him how some of the nice paintings on lamp shades were transferred and how some of the hydrofluoric etching of geometric patterns was done.

"The former is done in this manner. The workman is provided with a figure or design painted in paper with mineral (not vegetable) colors. This is made to adhere in the proper place on the glass shade by means of a varnish, the painted face being placed next to the glass. The paper being made very wet with cold water, is washed off, while the colors remain, which are made permanent by being burned in the kiln."

The bowl shown in Plate 70 has a medallion transfer-

printed in delicate colors. The plain surface is stained pink, and the effect is not unpleasing.

Hand-painting was employed extensively during the seventies and eighties. The decorating was done upon milk-white or opal glass for lamp-shades and lamps, vases, and ornamental plaques.

Gilding was practiced at the New England Glass Co. from the earliest days. The Whitworth and Wallis report made in 1854 on the Industrial Exhibition in New York said: "Gilding is executed very successfully, and it is stated that other houses in the United States have attempted to gild their own work and have failed, this being the only establishment in which it is now carried on."

Glass in almost every conceivable color was made at the New England. Thomas Leighton's receipt book, continued by his son, John H. Leighton, throws much light on this phase of the manufacture in the early period. While the receipts themselves cannot be made public, the list of colors is of great interest, especially as the purpose of the receipt is sometimes noted. This list does not necessarily indicate that every color mentioned here was actually produced by the factory. On the other hand, some colors appear several times over with varying directions for making them. The list follows with the accompanying comments:

Purple
Blue
White enamel
Yellow
Amber
Black
Light blue

Dark blue
Blue for pressing
Light blue for pressing
A recipe to make flint glass without lead
Stain, and a stain with nitrate of silver
Aster green
Bright red amber
Purple for wine bottles, toilet bottles and other fancy work, for pressing. September 25, 1846
Light blue for wine bottles, toilet bottles, and other fancy work
(A note says "Powder blue makes a much better color for pressing.")
Canary. (Makes a beautiful canary color) 1848
To make a small batch for white boxes
Common green. (This makes a good glass for Lamp Globes and Chemical Work)
Ruby. (First appears in 1848–9)
Opaque blue. (This makes a good blue for buttons)
Opaque green for pressing buttons
Brown and maroon for buttons
Transparent green for plating
Turquoise
Alabaster for pressing
Amber. (This makes good flasks and finger bowls)
Victoria (A good color for flasks)
Copper ruby
Plating green
Plating blue. 1866
Opal
Pearl, for balls or canes
Opal (Kerns)
White with lead
White without lead

Plate 18

Mrs. W. D. Barker

EARLY RUBY GLASS

Crysolite white
Malachite green. 1868
New Bedford Opal

In 1874 John H. Leighton gave the receipt for an ordinary batch of flint glass to Thomas Gaffield, who recorded it in his journal as follows:

100 lbs. Sand
70 " Oxide of Lead
50 " Potash or Pearlash
12 " Nitrate of Potash
116 " (or ½ the above amount) Cullet or broken Glass
3 " Arsenic
3 " Manganese oxide

He adds that the arsenic was used to carry off the excess of color of the manganese, and that excess of arsenic gives glass a yellowish tint.

The two gaffers, father and son, and the brother, William Leighton, were constantly experimenting in the laboratory to create new and beautiful colors. In this way the formula for ruby glass, for which the New England became justly famous, was discovered by William Leighton. The receipt first appears in the note-book in 1848 or 1849, so it must have been invented at about that time. Previous to the discovery of the formula the ruby glass was imported in bulk and re-melted for use.

The New England ruby once seen can be distinguished from other red glass. It was made by the addition of coin gold to the mix. Twenty-dollar gold pieces were used for the purpose. A former bookkeeper of the company remembers sending to the bank for the

Plate 19 *Author*

BLOWN RUBY VASE WITH CLEAR BASE, *c.* 1865

coins and having them in charge. The resulting color shows a golden glint in some lights. It is a rose-red, more noticeably so where a thin coating is laid over clear glass, and it never verges towards the yellow, as in the case of Bohemian red. Occasionally it has a magenta tinge which disappears when the object is turned into a different light. By its weight and ring, too, it may be distinguished from the ruby of other factories. New England glass-workers were justly proud of this color. A finer ruby glass has never been produced.

"Ordinary ruby glass is not coloured throughout its substance, but is simply flashed with the colour, that is, only the surface of the glass is covered with a thin coating of the colouring matter. A ball of white glass is taken up on the blow-pipe and dipped in the melted ruby glass and then blown and fashioned to the required shape. Ruby glass is prepared by adding gold chloride or purple of cassius to the materials. The glass is heated twice, because the colour does not properly develop at the first time of heating. . . . Various flame colours may be produced by mixing together a gold ruby glass and a yellow antimoniate of lead glass in different proportions."[1]

In some cases the New England ruby glass was made with the color throughout — in railroad lanterns, for instance. If the glass became broken or chipped, it would still be red — a feature of utmost importance in glass for that purpose. Ornamental pieces were often thickly plated. The toilet bottles in Plate 57 have a band of cutting that shows ruby and not clear white. Frequently, however, the colored glass prepared for engraving or cutting has only a thin layer of ruby, and

[1] Cassell's *Cyclopedia of Mechanics*, 1904.

Plate 20

Mr. Thomas Leighton, Jr.

a. Nailsea style vase
b. Ruby basket with handle, edge, and base of clear glass

Plate 21 *Mrs. E. H. Skinner*

ONE OF A PAIR OF PURPLE VASES
WITH GILDING

Plate 22

Mrs. Damon E. Hall

TURQUOISE BOTTLE, ENGRAVED DECANTER, AND BOTTLE WITH DRINKING GLASS

the result is a light rose-red, almost a strawberry color. It is needless to add that this color was very costly to produce.

The early purple used for blowing was a real royal purple — not shading towards the amethyst like the greater part of purple glass. This most unusual color was obtained by the addition of manganese to the batch.

Black was a jetty color, much used for artificial jewelry and lamp bases. Often it was laid over white and cut away in designs or initials. Ruby, too, was prepared in the same way for jewelry. When held to a strong light the New England black shows a ruby tinge, whereas Sandwich black shows purple.

The emerald green is a beautiful color, and is found more often than dark blue or yellow. It was used for wine-glasses and for plating. Amber has not been found in any of the pieces identified by the author, and assurance has been given that it was not made at the New England during the late period, although the presence of a formula in the receipt book indicates that it may have been produced at an earlier time.

Light blue in various shades, turquoise and powder blue particularly, are encountered frequently. A turquoise blue bottle (Plate 22) showing a fiery opalescence when held to the light is in the possession of a descendant of John H. Leighton. A sticker on the bottom says: "J. H. L. Jr. First Light Blue. May 24, 1870." Light blue must have been made before this time; and it is a question whether this bottle was blown from a batch mixed after the first receipt, or whether it was really a new color. One might almost call this an opalescent blue. It is an unusually lovely color.

Plate 23

Mrs. W. D. Barker

BLOWN PIECES IN TURQUOISE AND POWDER BLUE

The term "white," as applied at the New England, means milk-white; uncolored glass was always known as "clear" glass. Its trade name was "opal," and its color was the pearly-white of fine porcelain. It is not to be compared with the ordinary milk-white lime glass of other factories. The Whitworth and Wallis report says of it: "The opal glass manufactured at this establishment is better than the great proportion of that produced in Europe. It is clear in body and pure in colour. Bone is used instead of arsenic for the finer qualities. For common articles the latter material is employed as usual."

The colors actually found by the writer in authenticated pieces may be useful for reference: opal, black, ruby, emerald green, light opaque green, dark blue, turquoise blue, powder blue, light opaque blue, purple, amethyst, canary yellow, rose, pink, alabaster, and opalescent.

During the eighties, when the company was struggling to hold its own in competition with the factories that were making lime glass designed to catch the popular fancy, several unusual novelties in colored glass were put out. The trade names for these new styles were *Pomona, Amberina, Peach Blow,* and *Agata.* The story of these wares is so interesting that it has been reserved for another chapter.

Plate 24

Mrs. W. D. Barker

EARLY COLORED PIECES IN PURPLE AND OPAQUE WHITE, BLUE, AMETHYST, AND GREEN

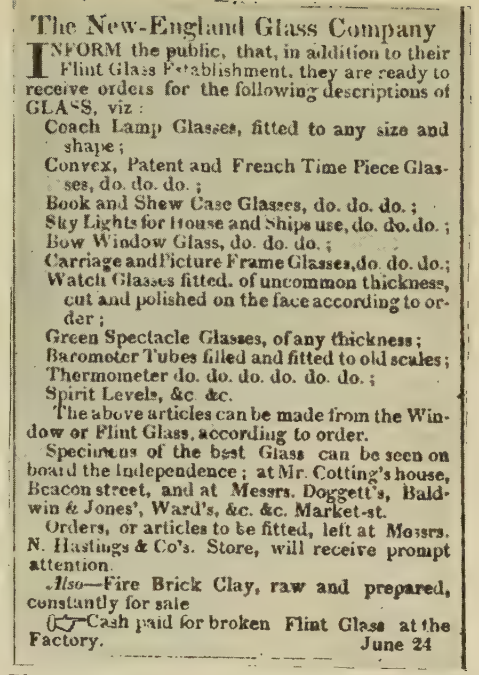
A SURVEY OF THE PRODUCTS OF THE FACTORY

PRACTICALLY all information about the early output of the New England Glass Co. has been gleaned from contemporary newspaper advertisements; no specimen of the glass known to have been made before 1830 has been found. The knowledge gained in this way has been considerable, however, and is indeed more definite than any obtained by other means.

The company's first advertisement, appearing April 13, 1818, in the *Boston Commercial Gazette,* calls attention to the following, in flint glass: "apothecary and chimical wares, electrical apparatus, entry lamps, moonlight lamps, convex clock faces, vase and candle shades, globes of all sizes and kinds, decanters, tumblers, wines, dishes, plates, salts, &c."

The second, which appeared on July 6 of that year, listed in addition, coach lamp glasses, convex, patent, and French time-piece glasses, book and shew case glasses, sky lights for house and ships' use, bow window glass, carriage and picture frame glasses, watch glasses, green spectacle glasses, barometer and thermometer tubes, and spirit levels. These articles were made of either flint or window glass, according to order. A large proportion of the first product seems to have been glass of a useful nature.

An examination of the advertisements reproduced in Plates 25 and 26 is worth while. Here are lists of tableware sold at auction: one for a sale held October 16,



The New-England Glass Company

INFORM the public, that, in addition to their Flint Glass Establishment, they are ready to receive orders for the following descriptions of GLASS, viz:

Coach Lamp Glasses, fitted to any size and shape;
Convex, Patent and French Time Piece Glasses, do. do. do.;
Book and Shew Case Glasses, do. do. do.;
Sky Lights for House and Ships use, do. do. do.;
Bow Window Glass, do. do. do.;
Carriage and Picture Frame Glasses, do. do. do.;
Watch Glasses fitted, of uncommon thickness, cut and polished on the face according to order;
Green Spectacle Glasses, of any thickness;
Barometer Tubes filled and fitted to old scales;
Thermometer do. do. do. do. do. do.;
Spirit Levels, &c. &c.

The above articles can be made from the Window or Flint Glass, according to order.

Specimens of the best Glass can be seen on board the Independence; at Mr. Cotting's house, Beacon street, and at Messrs. Doggett's, Baldwin & Jones', Ward's, &c. &c. Market-st.

Orders, or articles to be fitted, left at Messrs. N. Hastings & Co's. Store, will receive prompt attention.

Also—Fire Brick Clay, raw and prepared, constantly for sale

☞Cash paid for broken Flint Glass at the Factory. June 24

The New-England Glass Company will offer for sale, at Public Auction, on 16th Oct. at Messrs. Jacob Peabody & Co's Auction Office, No. 12, Kilby-street,

100 packages Glass Ware, consisting of

18 packages Prussian quart Decanters,
5 do. do. Ruts do.
1 do. Prest Castor Bottles,
6 do. Tale B. S. Wines,
4 do. Prest Pocket Flasks,
18 do. 4, 5, and 6 hole Plated and Japan Castors,
17 do. Flint and Tale half pint Tumblers,
14 do. Moulded half do. do.
1 do. Lemonades,
1 do. Prest Seragon Liquor Bottles,
8 do. Moulded Jam and Salts,
2 do. Pint Tumblers,
2 do. quart do.
1 do. pint Pitchers,
4 do. ring, quart and pint Decanters,
4 do. Proof Glasses.

The above Goods will be sold without reserve, on a credit of 6 months, and the quality is believed to be equal to any imported.

Catalogues will be ready for delivery, the day before the sale.

Plate 25

ADVERTISEMENTS IN THE *Boston Commercial Gazette*, JULY 6, 1818, AND OCTOBER 4, 1819

1819, and one for their "spring sale" on April 5, 1820. There are tumblers and decanters in various sizes, plain and molded, wine-glasses in different shapes and sizes, goblets, lemonades, molded jugs, plates, castor-bottles, pungents, spice-jars, flasks, liquor bottles, molded salts, cut decanters, and other articles. The list is long enough to arouse much delightful conjecture. The pressed and molded glass is discussed at some length in later chapters.

The abbreviations and descriptive terms in these lists are somewhat puzzling. *B. S.* is presumably baluster stem; *W. F.* — welted feet (this term is used in a contemporary advertisement); *S. L.* — seragon liquor. The term *tale* was probably used for an inferior quality of glass. The word *tailings* is employed by metal-workers to denote the refuse or part that is worked over.

Proof-glasses were test tubes. In 1828 a writer in the *Lancet* says: "Here are some little phials, called in the glass-houses proofs." A later writer calls them "Thick Glass Vessels — Proofs or Bologna Phials." No doubt these were the same-or similar to the tube-shaped glass illustrated in Plate 27. This was a wine tester for sampling wine from the barrel. The thick base gave it enough weight so that it would sink when empty, and it was slender enough to be lowered through the bung-hole.

The word *pungents* is without doubt the same as the *pungeons* (spelled also *pungeonts, pungeens, pungrants*), found by Priscilla C. Crane in Deming Jarves's note-book. Her conjecture is that the word is a corruption of *puncheon,* meaning a bowl. An advertisement in the *Boston Gazette* of September 4, 1815, seems to indicate a different meaning. Samuel Kidder, druggist, "in the commodious and elegant Brick Store under

The New-England Glass Company,

Inform their Customers that their Spring Sale for their

MANUFACTURED GLASS,

WILL TAKE PLACE

On WEDNESDAY, 5th April, at 10 o'clk.

At Whitwell, Bond & Co's. Office No. 2, Kilby-street,

When the following Goods will be sold without reserve, on liberal credits, and catalogues will be ready three days previous to the sale, viz :—

20 packages japanned and plated four, five and six holes Castors,
23 do quart pully ring Decanters, plain and moulded, with ball and prest star stoppers,
8 do pint do to match,
8 do quart do common S. L. match pressed star stoppers,
1 do pint do do do do do.
16 do pint tale taper and tavern Tumblers, moulded and plain,
58 do ½ and 1-3 pint flint and tale do taper bbl. and French shape, plain, figured and printed,
7 do gill pressed do.
53 quart tale taper do plain & moulded,
5 do T. T. B. S. W. F. and Gloster shape Wines,
5 do Stopper Rounds, assorted,
9 do Salt-Mouth do do.
3 do common Pimgents, do.
1 do Spice Jars, do.
2 do Mortars and Pestles, do.
9 do pint and half pint green Pocket Flasks,
1 do tale half pint B. S. Gloster shape Goblets,
50 do ½ and 1-3 pint common arch rib Tumblers,
5 do moulded Castor Bottles, assorted, consisting of Peppers, Cruets, Soy Cruets and Mustards,
1 do moulded Liquor Bottles,
8 do quart, pint and half pint moulded Jugs, [mond, &c.
1 do do and pint Decanters, cut, dia-
6 do fan cut and octagon moulded Salts
1 do Proof Glasses,
2 do 5 & 5 inch Dessert Plates, printed
20 do assorted Pails, from ½ to 8 oz.
40 do arch rib 1-3 pint Tumblers,
40 do moulded do do.

Catalogues will be ready three days before the sale.

Plate 26

ADVERTISEMENT IN THE *Boston Commercial Gazette*, MARCH 27, 1820

Washington Hall, Charlestown," had for sale " Pungent Smelling Bottles."

Salt-mouth stopper rounds is also an unfamiliar term. Salt-mouth bottles or jars had wide mouths, and were intended for chemical salts. Glass stoppers were made to fit them.

Plate 27 *Mr. Thomas Leighton, Jr.*

WINE TESTER AND TRICK GLASS

Glass-cutting was practiced from the very first days of the company. In the *Boston Commercial Gazette* of February 25, 1819, one Joseph S. Hastings advertised " Splendid Cut Glass and China Ware, No. 34 Marlborough-street.

" Also, just received from the New England Glass Company, the handsomest specimens of Cut Glass ever

manufactured in this country, and equal to any in Europe, such as Grecian Lamps, Sallad Bowls, Blanmange Dishes, &c."

Cutting continued to be the most important type of decoration used at the New England. January 15, 1825, the following advertisement appeared in the *Evening Gazette,* a Boston weekly:

NEW-ENGLAND GLASS COMPANY

The New-England Glass Company have on hand at their Warehouse, No. 140, Washington-street, rich cut, plain and moulded Decanters — Carofts — Pitchers — Tumblers — Wines — Lemonades — Jellies — Custards — Sallads — Celleries — Dishes, &c.

Superb Lustres, for mantle pieces — Chandeliers for Churches and Halls — Entry Lamps, various patterns, with and without balance balls — cut and plain Stand Lamps, and Lamps for Mirrors, &c. ground and plain Shades and Chimnies, for Astral and other Lamps — Shades, for Alibaster and China Vases — Chymical and Philosophical Glass Ware — Apothecaries' Shop Furniture, &c. comprising the most extensive assortment of Glass Ware to be found in this city, which they offer for sale — wholesale and retail on the most advantageous terms.

Desert Services made and cut to order at the shortest notice.

Ware loaned for parties, &c.

Also, on hand, a few casks white and green Vials, assorted.

JOSEPH WING, AGENT.

A similar paragraph in the same paper December 24, 1825, lists " rich cut Centre Dishes — Celleries,

&c., Entry Lamps, new patterns, with bronz'd and lacquer'd trimmings."

No mention is made here of pressed glass. Although it was a little later an important feature of the factory's output, it was probably never the principal one, as it was at Sandwich. In this connection it is interesting to note what must have been the first advertisement of the Boston and Sandwich Glass Co. in the *Evening Gazette* for September 24, 1825:

FLINT GLASS

The subscriber informs his friends and the publick that his Flint Glass Manufactory in Sandwich, is now in full operation, and is ready to receive and execute orders for any article in that line — particularly

Apothecaries, Chemical and Table Wares. Also, Chandeliers for Churches and Halls, Vase and Mantle Lamps, Lamp Glasses, and all other articles usually made in similar establishments; and on as favorable terms.

Orders directed to Sandwich, Mass. will receive prompt attention.

DEMING JARVES

Sept. 24.

The first products of the two factories were evidently somewhat the same.

By 1832 the New England Glass Co. was advertising pressed glass. The *American Advertising Directory,* published in New York in that year had the following announcement:

"New-England Glass Company, Manufacturers of every description of Cut, Plain, and Pressed Glass Ware, including Stained, Engraved, Gilded, and every

other kind of Ornamental Table Ware, Stained and Obscured Window Glass, Patent Cut and Plain Glass Furniture Knobs, &c &c."

In 1829 an advertisement in the *Boston Directory* read:

NEW-ENGLAND GLASS COMPANY'S WAREHOUSE

No. 140 Washington Street,
Directly opposite the bottom of School street, Boston
Manufacture and keep constantly on hand, at Wholesale and Retail,
Rich cut and Plain Flint Glass Ware of every description and pattern, Also, Apothecaries' and Chemical Ware, and articles of every kind made to order. They are also Agents for selling New England Crown Glass.
They also stain Glass after the ancient mode of doing that work for Churches, Dwellings, &c. Specimens may be seen as above.
Particular attention paid to all orders.

JOSEPH H. LORD, *Agent.*

This was the period of the Gothic revival, soon to be felt in domestic architecture and furniture styles. Attempts had been made in Europe to discover the secrets of staining glass in the mediaeval manner — secrets which had been lost during the decline of the art in the seventeenth and eighteenth centuries. No work of any importance was accomplished in the early Victorian era, and such knowledge as was obtained was only a step toward the later recovery of this form of decoration.

Such as it was, this knowledge was brought to the

New England Glass Co. by John L. Race, who had received his training abroad. In 1834 he had left the works for a venture of his own. The following interesting advertisement sets forth his abilities and those of his pupil, William Redding:

NEW ENGLAND STAINED GLASS MANUFACTORY

The subscriber respectfully informs his friends that he has fitted up an establishment in Harlem Place, No. 347, Washington street, for the purpose of Staining Glass in the Ancient Style, an art supposed to be lost for many centuries.

This most superior style of Painting, superior both for elegance of coloring and durability, (as nothing can injure the effect produced but what will destroy the glass itself), has been recently revived in Europe and brought to this country by Mr. John L. Race, an artist of the highest standing in his profession.

The subscriber having been instructed by the above named artist, and he remaining with him as superintendent of the work, enables him to assure the public that whatever orders are entrusted to him will be executed with elegance, punctuality and despatch.

Orders may be left at the Factory, or with the subscriber at No. 3 Cornhill, sign of the Faithful Servant, where every variety of Sign and Fancy Painting may be obtained at moderate prices, and first rate work. Specimens may be seen at either of the places above mentioned.

WILLIAM REDDING

Boston, March 27th, 1834.

Having instructed Mr. William Redding in the Art of Staining Glass, according to the most approved

methods, and the same as used by myself, I declare him fully competent to execute any work entrusted to him.

JOHN L. RACE

Boston, March 27th, 1834.

The above named J. L. R. is the same Artist who has hitherto executed the Stained Glass Work for the New England Flint Glass Co. at East Cambridge.

A comment in the *Evening Gazette* of September 28, 1839, on the exhibit of the New England Glass Co. at the Mechanic's Fair is interesting in this connection.

"In some of the windows placed so as to receive the light are stained glass from the New England Glass Company; others from H. Redding add to the effect — while the former have placed upon a table the most brilliant display of glassware ever seen."

The H. Redding mentioned was Harvey Redding, who began the manufacture of stained glass in Boston in 1829, and who was the forerunner of Redding, Baird & Co.

After the departure of Mr. Race from Cambridge, the company did not make a point of advertising their stained glass. Attention was called instead to their door knobs and bell pulls. An advertisement in the *Boston Directory* for 1834 says:

They also keep on hand a great variety of Door Knobs for outside and inside doors, of various patterns of Cut and Pressed Glass. — Also any particular pattern made to order at short notice.

Also

Glass Door Plates made to order of 7 different sizes — the prices from $2.50 to $4.50, and warranted not to fail. Door Numbers and Bell Pulls.

Particular attention paid to all orders.

JOSEPH H. LORD, *Agent.*

The manufacture of door fixtures seems to have been an important feature of the work at that time. A small notice for the express purpose of advertising this one line of goods was run in the *Evening Gazette* for several years. Two patents for improvements in knobs were taken out during 1834 by Enoch Robinson, Francis Draper, of Cambridge, afterwards of Francis Draper & Co., brittania manufacturers, and Joseph H. Lord of Boston, agent of the glass company. The first, obtained September 20, 1836, was for "Improvements in the Manufacture of Door, Commode Furniture and other Knobs," the improvements consisting of an arrangement "by which the knob is securely fastened to the plate or socket without any spindle or screw being inserted into the knob, and which we call our socket knob"; the second, taken October 20, 1836, was for an "Improvement in the Ferule Knob for Furniture."

It would be interesting to have an exact description of the "setts of dishes" offered the public in the following advertisement, printed in the *Evening Gazette,* April 30, 1836.

NEW GLASS DISHES

The New England Glass Company offer for sale at their Warehouse, No. 140 Washington-street setts of glass dishes from 3 to 12 inches, also covered Dishes

of an entire new style most suitable for Blanc Mange and Fruits of all kinds.

Besides the articles mentioned in advertisements we have the evidence of a number of pieces of known date made before 1840. The loving cup illustrated in the frontispiece is an example of work believed to be peculiar to the New England factory. It was blown as a wedding present for George Dale, one of the blowers. It stands $10\frac{1}{2}$ inches high, and $9\frac{1}{2}$ inches across the handles, and it is engraved with initials on one side and "Married 8 Nov. 1833" on the other. In the hollow stem there are two coins, one with the date 1817, and the other 1818. The lower part of the bowl is fluted and there is an inch band of tooling around the top. The handles are hollow. A smaller loving cup in the same style, made in 1837, is in the possession of Mr. Thomas Leighton, Jr., of Cambridge, Massachusetts.

An even earlier piece of similar design is the pitcher in Plate 28. The pitcher and sugar-bowl in Plate 29 were made in 1838 for Miss Thyrza Barnes when she was about to marry George Leighton, a son of the first Thomas Leighton. All of these pieces are unusually heavy in proportion to their size.

A lamp of early date is shown in Plate 35. It was made in 1831. This lamp may be seen at the Lexington Historical Society, and its history is told more fully in the chapter on pressed glass.

The little cut glass smelling bottle in Plate 29 was made by Joseph Burdakin in 1831 as a gift to the lady who became his wife a few years later. Originally it had a round cut stopper.

Most collectors are familiar with the rectangular pressed salts bearing the mark — N. E. GLASS COM-

Plate 28 *Mrs. Damon E. Hall*

EARLY FLASKS AND MOLDED PITCHER WITH COIN IN STEM

Plate 29

Mr. John H. Leighton
Mr. Sylvanus L. Fillebrown

a. Molded and tooled creamer and sugar-bowl, *c.* 1838
b. Cut vinaigrette made in 1831

PANY BOSTON — on the base. These were undoubtedly an early product of the factory, at the time when Sandwich salt-cellars of similar shape were in vogue. Other designs without the company mark, but much the same in size and shape, appear to be the work of the East Cambridge company, although the writer has found no authenticated specimen.

It seems certain that every imaginable variety of glass was produced at this factory before 1850. The Leighton receipt book mentions "purple for wine bottles, toilet bottles and other fancy work, for pressing, Sep. 25, 1846," light blue for the same purpose, a small batch for white boxes, a good blue for buttons, amber for flasks and finger bowls, and Victoria (canary) for flasks. The output included tableware of every sort, blown and decorated more often than pressed, and up to this time heavy rather than fragile.

Beautiful engraving was an established fashion in the forties and the fifties. The tumblers in Plate 30 were part of a wedding outfit in 1846. A square toilet bottle in the possession of Miss Marion Pike of Cambridge, Massachusetts, was made for Mrs. John H. Leighton in 1856. Its sides are engraved with a castle scene, a basket of flowers, a bouquet, and the name of the recipient with the date.

An early and remarkable piece of glass is described by William Leighton, Jr., in a letter written to Thomas Gaffield in 1879. He says:

"I have a colored vase made many years ago at the "New England" which I believe could not be reproduced in this country. It is of four casings — the inner of flint glass — then red, then opake white, then opake green. It is cut to represent a lilly — there is the green

Plate 30

Mrs. E. H. Skinner
Miss Marion Pike

a. Engraved tumblers, 1846
b. Engraved toilet bottles, the larger made in 1856 for Mrs. John H. Leighton

bulb, the white leaves, red centre, then a clear flint portion, and rising above all a red top. It is also elaborately gilded though I doubt if the gilding adds much if anything to the beauty. It is about two feet high, and cost the "New England" between $150 and $200. I think it is the most remarkable and beautiful vase in the country.

"The most difficult portion of the manufacture of my vase was blowing the casings perfectly even; this was done by my father; and I do not believe there is another man in this country that can do such a piece of work."

From 1850 on the products of the New England Glass Co. are better known. The memory of many persons now living goes back to the Civil War Period, and the examination of hundreds of authenticated specimens of the glass substantiates the story. So great was the variety that any list can cover only the things characteristic of the period.

In pressed glass there were sets of tableware in many familiar patterns — the thumb mold, the pineapple, various patterns of ribbing and panelling, and in imitation of diamond point cutting. These sets included all sorts of goblets, tumblers and drinking glasses, decanters, pitchers, compotes, nappies, sugar-bowls, and so on. Heavy salt-cellars, often rectangular in shape, cut or pressed, are typical of the New England styles. Whale-oil, and later, kerosene lamps, were made in the types familiar in the Sandwich lamps, and often in the same patterns.

Blown ware included wine-glasses, clear and in colors, decanters, goblets, finger bowls, vases, toilet bottles, and other decorative ware — in short, every-

thing that would be turned out in a glass-house today. Ruby was the prevailing color, and is found in many shapes. A beautiful emerald green was also popular at this period. Besides these fine wares there was a constant output of railroad and chemical supplies, lanterns

Plate 31 *Mrs. Damon E. Hall*

Ruby Pitcher and Purple Blown Vase

and lamp-chimneys. Funnels, syringes, eye-cups, retorts, graduates, and druggists' jars and bottles were all blown at the New England — in every case being made of clear, resonant, lead glass.

Engraving and cutting were used as decoration on all sorts of tableware and particularly on tumblers and

goblets. Objects formed of clear glass overlaid with ruby, cut and engraved to show the clear white, followed the fashion in Bohemian glass, so popular at that time. Jarves says in 1865: "Their richly cut, gilded, colored, and ornamented glass is considered equal to European work."

Paper-weights were turned out by the thousand during the middle of the century. Millefiori, apple and pear weights, and weights of cut and pressed glass, were all part of the New England product.

In the seventies the simpler blown forms were abandoned for the more ornate styles characteristic of that decade. Cutting was done in fine patterns, often on very thin glass, and engraving and etching were applied more and more lavishly. Beautiful straw-stem wines, fragile as a breath, represented the epitome of the glass-blowers' art.

Colored novelties, often fanciful and useless, were introduced at this time. Shoes in many colors, such as pink, blue, yellow, and black, sometimes decorated in enamel coloring, suited the Mid-Victorian taste. There were vases, too, in every conceivable shape and color — opaque white, black, turquoise blue, and pink. These were enameled or gilded, or perhaps painted with storks, birds, or flower sprays. Sometimes one color was laid over another, such as white over pink, or rose over white. Toilet bottles, transfer-printed, gilded, or painted, were made in translucent white, blue or green, and choicer specimens of ruby glass were cut and gilded. The toilet bottle in Plate 33 is of canary yellow, pressed in a pattern familiar in Sandwich glass. The finish of this bottle is far superior to that on ordinary pieces of such ware, the glass having been fire-polished to a velvety smoothness not to be observed in

Plate 32

Mrs. Charles X. Dalton

ENGRAVED GLASS, *c.* 1875

Sandwich pieces. The yellow has a decided tinge of green.

The New England Glass Co. made some of the handsomest lamps of the kerosene period. The bases are generally opal (milk-white) or black with contrasting bowls of light green, blue, clear white or ruby. The four-sided base seems to be typical of the lamps from this factory. There was also an enormous output of lamp-shades and globes, painted, etched, and cut. Several types of candlesticks in pressed glass had a large sale at this period.

The eighties was the period of the amberina, peach blow, and Pomona glass discussed in a later chapter. The interest in colored tableware was then at its height. Colored novelties, pitchers and tumblers, and the handsomely cut and engraved clear glass were in fact the principal products of the factory during its remaining years.

An advertisement in the *Boston Directory* for 1884 reads as follows:

Established 1818

NEW ENGLAND GLASS WORKS

W. L. LIBBY & SON

Manufacturers of

Rich Cut and Molded Glass Ware, Fine Decorated Glass Ware, Globes and Vases, " Amberina Art Glass."

155 Franklin St. Boston
Factory at Cambridge

Plate 33

Mrs. Charles X. Dalton

LATE BLOWN AND PRESSED GLASS

PRESSED GLASS

IT IS a generally accepted fact that the art of pressing glass is an American invention, and the conclusion is quite as frequently drawn that it originated at the Sandwich factory. As a matter of fact both assumptions are half-truths.

Pressing by hand was known in England many years before the opening of the Boston and Sandwich Glass Co.; it was practised in this country before that date; and the Cape Cod manufactory identified itself with this method rather by the perfecting of the pressing machine than by any unusual and startling discovery.

We have the statement of Deming Jarves himself to the effect that America cannot claim the credit for the invention. He says:

"This important branch of glass-making demands more than a passing notice. Although it is commonly believed here that the invention originated in this country, the claim cannot be fully sustained. Fifty years back" (1815) "the writer imported from Holland salts made by being pressed in metallic moulds, and from England glass candlesticks, table centre-bowls, plain with pressed square feet, rudely made, somewhat after the present mode of moulding glass. From 1814 to 1838 no improvement was made in Europe in this process, which was confined to common salts and square feet."

An article in the *London Pottery Gazette,* in the seventies, attempted to prove that pressing was not

an American invention. In it the following statement was made: "Many in the English glass trade are living who remember the pressed square-footed ales and goblets. These are as old as the end of the last century, and were very fashionable with our ancestors. At first they were cut over, but they perfected the make so that they were simply cut at the bottom to take off the overplus."

In Plate 34a two glasses of this type are illustrated. A simple pattern was impressed into the piece of glass that was to form the foot — apparently with a hand stamp. This process did not form the shape of the foot, which was afterwards cut square, then ground down smooth, and attached to the stem of the glass. Unfortunately the exact date of these glasses is not known, but the style conforms to the fashions of the early nineteenth century; and it is quite evident that the foot is shaped by other means than the mechanical pressing machine.

The tale has been told so frequently that the process was devised in 1827 by a carpenter working under Deming Jarves, that like many such unauthorized stories it has been accepted as true. Sometimes the carpenter is said to have been working at the Sandwich factory, sometimes at the New England, and at least two writers have said that his name was Robinson. Theodore MacManus, in the Libbey souvenir book previously quoted, relates the tale as of the Cambridge factory, says that the carpenter's name was Enoch Robinson, and that a consignment of fine pressed glass sent to England in 1832 was the first under the "Enoch Robinson" patents. There was an Enoch Robinson whom we have been able to connect with the New England Glass Co. to this extent: on

November 4, 1826, he took out a patent for "Glass Knobs for Doors, etc." with Henry Whitney, who was at that time manager of the company; and in 1836 he

Plate 34 *Author*

a. Early nineteenth century wine-glasses with pressed feet
b. Salts marked N. E. Glass Company Boston

was living in Cambridge and took out patents with Joseph H. Lord, Boston agent of the company, for improvements in the hardware of glass knobs. This

Robinson was a machinist and locksmith. After 1836 he was established in Boston as a lock and knob dealer, first at 32 Dock Square, and then for many years at 4 Washington St. The patent obtained by him in 1826, however, was the only one of any kind that he secured between 1820 and 1835. If he did, in fact, experiment at the factory with the idea of pressing glass by machinery, and there is no reason why he should not have done so, it was probably for a method of pressing knobs; and the " Enoch Robinson " patents could not have covered any other part of the manufacture, although he may have been indirectly responsible for the advance in the art during the years immediately following.

The elderly glass-worker interviewed by Priscilla C. Crane for an article in *Antiques,* April, 1925, gives the credit to the New England Glass Co. for having known the process before it was used at Sandwich. It remained to prove that the pressing of glass was practiced at Cambridge before 1825. This has been done by the discovery of the early advertisements shown in Plates 25b and 26. In the first one, which appeared in the *Boston Commercial Gazette,* October 4, 1819, we find mentioned " Prest Castor Bottles, Prest Pocket Flasks, Prest Seragon Liquor Bottles." It is true that in these items there is still room for doubt as to whether the term " prest " may not have been applied indiscriminately to molded glass. Nevertheless, the fact that the word was used at all shows that the process was known.

In the second advertisement, appearing March 27, 1820, we get entire confirmation. Here we find listed " Quart pully ring Decanters, plain and moulded with ball and prest star stoppers, gill pressed do." (meaning

tumblers). There is also a question as to whether the tumblers and dessert plates, "printed," may not have been pressed by hand.

Examination of the star or sunburst stoppers made to fit both plain and three-section-mold decanters of this period will show that they must have been pressed in a hinged mold, which opened in the manner of a waffle iron, leaving a pattern on both sides. Pellatt in his *Curiosities of Glassmaking* explains this process as used for pressing the pendants or prisms for lamps and girandoles. In this case a rough shape is formed by the pressing, and cutting thereby made easier. The neck of one of these stoppers is a lump of glass that is often attached to the handle or top with a lack of regularity not to be observed in a stopper blown or molded in one piece.

A tumbler of one-quarter pint size might easily have been pressed by a hand plunger in a plain mold. Very early tumblers as small as that are usually rather clumsy affairs with thick bottoms, and may conceivably have been produced by that method.

In addition to these advertisements of the wares of the New England Glass Co. we have further evidence in announcements made by other concerns. The list of items in an auction held by Jacob Peabody & Co., and advertised in the *Boston Commercial Gazette,* August 2, 1821, includes: "2 cases pressed Glass Bottles and Flasks, from ½ pint to 1 gallon"; and the advertisement of J. H. & E. G. Parker, No. 20 Broad St., in the same publication, September 19, 1822, reads: "On hand, a good assortment of cut, flint, pressed and plain Glass Ware."

There seems little room for doubt that the process in some form was well known several years before the

experiment by the carpenter with his improvised press. Other concerns were experimenting along the same lines, too. On October 16, 1827, P. C. Dummer of Jersey City took out a patent for a glass-pressing mold. This was more than a year before Jarves obtained a patent (December 1, 1828) for a "method of pressing melted glass into moulds." It has been proved that during the previous year he was pressing cup-plates and Lafayette salts; so we may conclude that his first patent for a pressing method was for a means of improving the process. Once the mechanical method was established, the Sandwich factory continued to improve upon it until pressed glass became its characteristic product.

The article in the *London Pottery Gazette,* referred to above, says that the ring to give the thickness was an American invention, and "that this discovery, trifling in itself, opened up the pressed trade in a remarkable way by enabling the lever used in modern pressing to force up the metal sharply, so as to give the appearance of cut-glass, as well as to closely imitate cut-glass patterns." Apsley Pellatt writing in 1849, speaks of the introduction into England from the United States of the invention of pressing glass by machinery. He says that it had not realized the expectations of the manufacturers and was chiefly used for common and cheap articles.

Bishop says: "The manufacture of pressed glass by means of metallic moulds, in imitation of cut glass — an American invention — was this year" (1834) "introduced into England by Messrs. Richardson of Stourbridge."

The earliest authenticated specimen of pressed glass unearthed while gathering the material for this book is

the lamp shown in Plate 35. The square base is stepped, with a waterfall effect inside; the bowl is blown. The lamp was brought from Machias, Maine, when the family of the owner came to Massachusetts about 1840. Many years later, in 1891, an elderly gentleman saw the lamp and inquired its history. He then told the astonished owners that he himself had made it, and others like it, when as a very young man he had worked at the New England Glass Co. This man was Edward Williams Bettinson, who afterwards became agent of the Bay State Glass Co. He was born in 1815, and died in 1898. According to his reckoning in 1891, he had made the lamp sixty years before — that is, in 1831. He said it was one of the first patterns made at the factory.

No other piece of pressed ware has been found that can be dated absolutely before 1840, although many blown articles have been preserved that were made before that time. This may be due to either of two reasons: pressed glass was not highly valued by the families of New England workmen, whose cupboards were filled with much finer blown and cut ware, and therefore it had not been preserved; or the New England may have produced only a limited amount of this kind of glass, since it always emphasized its cut, engraved, and richly colored glassware, and made little mention of cheaper products. They did advertise in 1832 " every description of cut, plain and pressed glass ware," but the factory was always noted principally for its handmade articles.

The salts in Plate 34 with the mark N. E. GLASS COMPANY BOSTON on the base the author believes to have been the product of the late twenties and the early thirties, when at least four other glass companies

Plate 35 *Miss Carrie E. Bacheller*

PRESSED AND BLOWN LAMP, 1831

made marked salts. Although pressed from the best flint metal, they are crudely made. It is the writer's opinion that such marked salts were distributed for advertising purposes, perhaps to demonstrate the new process of pressing. Those from Cambridge are fairly common in eastern New England — certainly more so than other early products of the factory. They are to be found in clear glass, opaque white, opalescent, turquoise blue, dark blue, and green. There are at least three variations in the mold. Some of the salts have a cable or twisted rope around the side panels, a tiny decoration around the margin, and a wreath encircling the label on the base; others have no cable, and still others have neither cable nor decoration on the border or base. Unmarked salts of similar design and quality are frequently seen. They are undoubtedly New England glass of the same period.

The discovery of a catalogue of New England pressed glass issued in the sixties (it was undated, but the company that printed it was in business in Boston in 1869), enables us to speak with more authority of this period. By it we are able to determine not only many of the patterns made there, but the forms made in each pattern, and the contemporary terms used in describing them. At a glance it is evident that a great deal of the fine pressed ware sold in antique shops today as Sandwich glass is really the product of the Cambridge factory. At the same time it must be remembered that some of the patterns were made in both places. The New England pieces may be distinguished, however, in most instances by the clear beauty of the metal and its unusual weight and ring.

Cuts from the catalogue illustrating the various patterns are reproduced here. A brief review of

Plate 36

DESIGNS FROM NEW ENGLAND CATALOGUE OF PRESSED GLASS,
c. 1869
WASHINGTON AND HUBER PATTERNS

its contents, also, is worth recording as a guide for collectors.

Pages one and two are devoted to cuts of the Washington pattern, a design of oval and round depressions surrounded by a draped fluting. It is a type that could not have been made in large quantities, as it is seldom seen today. The list of objects made is similar to that in other patterns. There were five sizes of covered bowls or compotes on high bases, ranging from six to ten inches, and the same uncovered; five sizes of bowls covered and uncovered on low feet; there were six sizes of nappies or shallow dishes without feet, from three and a half to eight inches, and others from six to eight inches on low feet or high bases, to be had covered or uncovered; oval dishes from seven to ten inches, and both six and seven inch plates. There were two types of water pitchers, a cream pitcher, sugar-bowl, spoon glass, celery holder, decanters with stoppers in quart and pint size, and others without stoppers with a "bar" lip (a thick round lip), a bitters bottle, and salts, large, individual, or footed. The glasses included goblets in two sizes, glasses for ale, champagne, wine, or cordial, jelly and egg glasses, one-half and one-third pint tumblers, and mugs for beer or lemonade.

Pages three and four are devoted to the Huber pattern — a design of simple panelling often seen in compotes and goblets. The range of articles made was much like the list given in the preceding paragraph, with some additional forms for beer mugs and bar tumblers. There is also an egg glass with a handle, known as a custard glass. This glass, simple and heavy, was doubtless adapted to use in public houses.

The third pattern is the sharp diamond, an imitation of diamond point cutting and a characteristic New

Plate 37

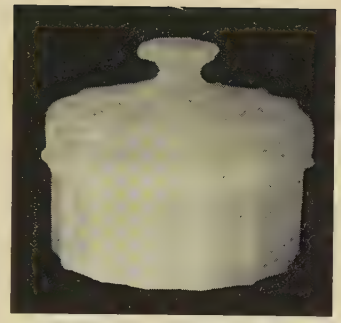
SHARP DIAMOND AND REEDED PATTERNS

England design. It is very good glass, brilliant and well-made, and many specimens have been kept in the homes of former workmen. The pitchers, or jugs, are particularly handsome and were made in four sizes, from one-half pint to three pints, besides a cream pitcher on a small foot. Sugar-bowls, with and without a foot, were designed to match. There were three sizes in plates, from six to eight inches. Cruets, peppers, and mustards for castors were catalogued in this pattern, and cake salvers from nine to fourteen inches.

The New York and the Vernon patterns were very much alike, and were the familiar " small thumb " of collector's lingo. In the New York pattern the molding covered only the lower portion of goblets, tumblers, and so on, leaving several inches of plain margin; in the Vernon pattern the design was carried nearly to the edge. Several unusual forms were included in the New York pattern, such as a covered carafe, known as " water-bottle and tumble-up," pickle jars, finger bowls, syrup jugs, twine holders, individual butter dishes and candlesticks. The candlesticks were like one of the two designs in Plate 45. The Vernon pattern appeared principally in covered and uncovered compotes, bowls, and nappies of various kinds, some of them with brittannia covers. There was also a little pomade jar. All of this small thumb pressing was made in lime glass and is one of the poorest products of the New England factory.

The " reeded " pattern was a heavy, fine ware, with ribbing similar to that in the Sandwich bell-flower glass. (No evidence has been found to show that the bell-flower was ever a New England type.) Another design of ribbing, pointed in a star-like effect, was known as the " blaze " pattern. A plate in this style,

Mrs. Damon E. Hall



Miss Marion Pike

Plate 38

Mr. Sylvanus L. Fillebrown

a. Pressed salt
b. Alabaster glass box
c. Bowl in "sharp diamond" pattern

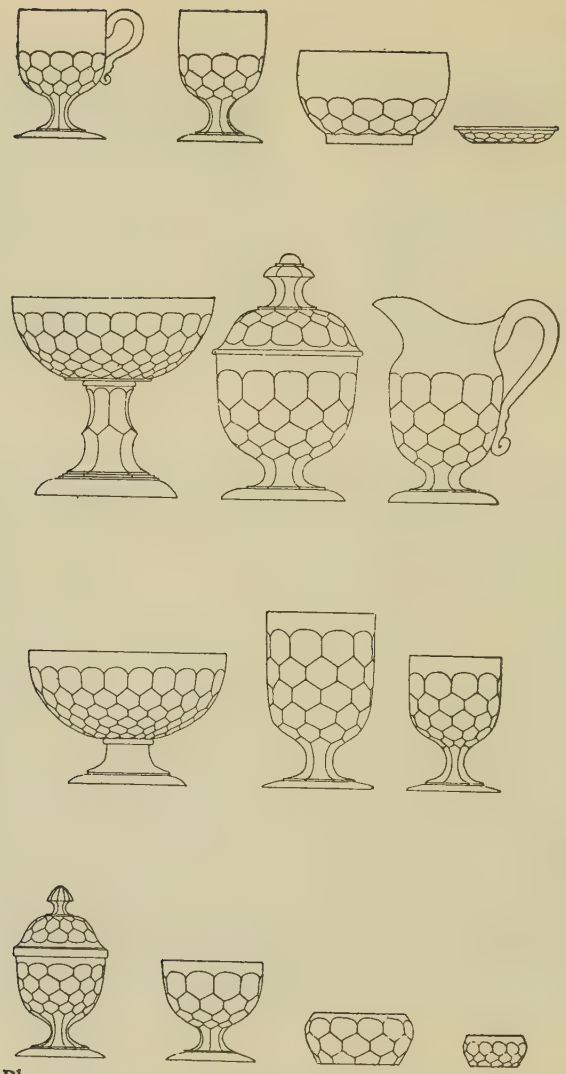


Plate 39

NEW YORK AND VERNON PATTERNS

like the majority of pressed pieces from this factory, has a ground-off pontil mark. In careful work a piece was always held on the pontil-rod for the re-heating necessary in smoothing off rough edges and in fire-polishing. Many articles in the blaze pattern have turned edges as well.

A familiar pattern to collectors is the "mitre" diamond — a coarse diamond point, with saw-tooth edges on covers that mitre perfectly into the edges of the body of the glass. The covered compotes are like huge flattened spheres, and have a certain brilliance when filled with fruit. They were made on high and low bases, in all sizes, and were also manufactured without covers. The cream pitchers, salt-cellars, and water pitchers were fashioned with smooth lips. In the case of the salt-cellars, the diamond points were blunt — a rather common type, also made at Sandwich.

The Ashburton or large thumb mold glass is one of the best known of heavy pressed patterns. Although this pattern is said to have been made at Sandwich also, study of real specimens indicates that much of it came from the New England Glass Co. A former salesman of the firm, whose father was a presser, and who was himself employed there in the seventies and the eighties, says that it went out of style about 1875, and he remembers hearing his father say that it was one of the earliest patterns. The author has a goblet that was one of a wedding set in 1855. The same holds true of the "pineapple" pattern glass, which is not included in this catalogue, but has been identified by two former employees of the company. An interesting item in thumb mold glass is the covered mug with a plate. It has been suggested by another writer[1] that the

[1] Mrs. Williams.

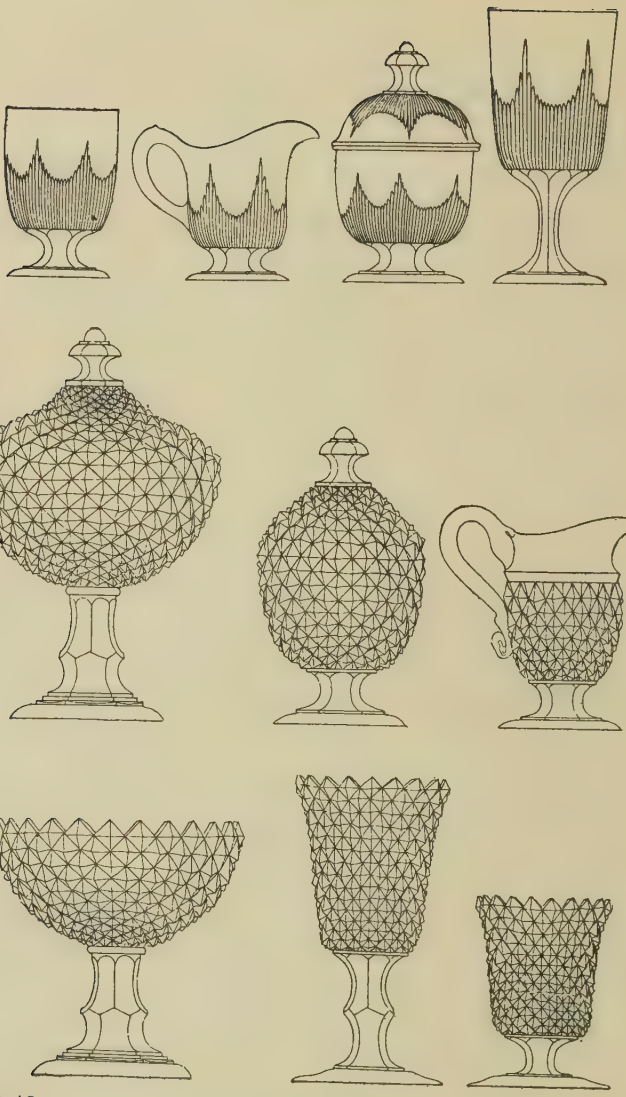


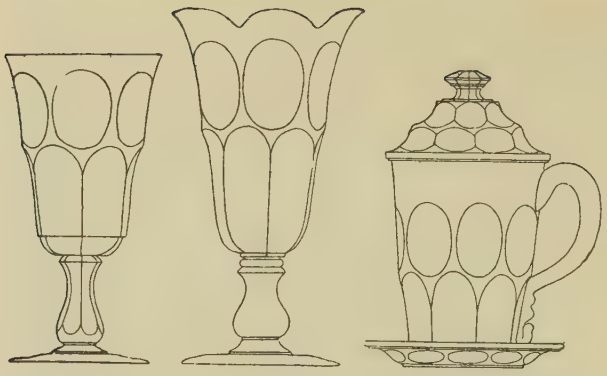
Plate 40

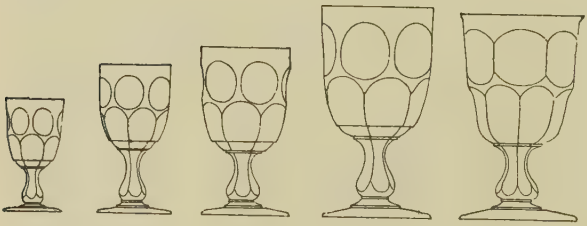
Blaze and Mitre Diamond Patterns

Plate 41

Mrs. Damon E. Hall

Group of Pressed Glass, Showing "Blaze" and "Sharp Diamond" Patterns





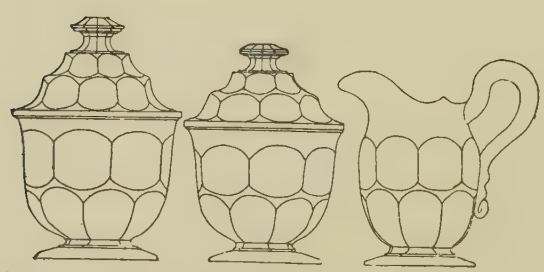


Plate 42

ASHBURTON PATTERN

five-inch plates with depressed centers may have been used for toddy-glass plates, and here is proof of their purpose. They were doubtless more plentiful in earlier times and must have been made in many patterns.

Many articles are listed under the Union pattern — a combination of bull's-eyes and diamond-point

Plate 43

UNION AND PHILADELPHIA PATTERNS

pressing — including a cologne bottle. Two pages are devoted to the Philadelphia pattern — an unattractive design of plain and reeded loops. A page of goblets shows types listed under fifteen or more trade names. The so-called " punty " bowls, shown in Plate 44, are perhaps as pleasing as anything of the sort made either at Cambridge or at Sandwich. The simplicity of the

decoration and the bell-toned flint glass have always attracted collectors to these bowls, so that they are now difficult to find. Punty bowls were also made in cut glass.

Plate 45 illustrates many smaller objects. Unfortunately the descriptive list for this page is missing. The writer has seen many of these pieces, however, and is able to say a word about them. The box at the right end of row *b* was for the toilet table. One of a pair in alabaster glass is illustrated in Plate 38. The right-hand object in row *d* is a shallow jar — perhaps for pomade — and has been found in opalescent glass, lined with rose color, and decorated with lines of gold. The dog in the middle is a paper-weight and is shown in Plate 60. These pudgy English bulldogs were made in black and in white. Next to the paper-weight is a knife rest.

Pressed cologne bottles were manufactured at the New England in a good canary yellow verging towards green. The writer has seen the fourth in row *a* and the first and second in row *b* in that color, and another is shown in Plate 33. These bottles are noticeably heavy, and they are well finished and fire-polished in a manner superior to that of work done at Sandwich.

Candlesticks were made principally in yellow glass, although the writer has seen a large New York pattern stick in a rich dark blue and a hexagonal pattern stick in purple. A former salesman says the yellow ones were sold in quantities. He remembers them only in these conventional designs and thinks dolphins were not a New England product. No authenticated dolphins have turned up, and we may assume that they were not made at East Cambridge. Examination of the drawings shows that these candlesticks could have been pressed in one operation, unlike those made at Sand-

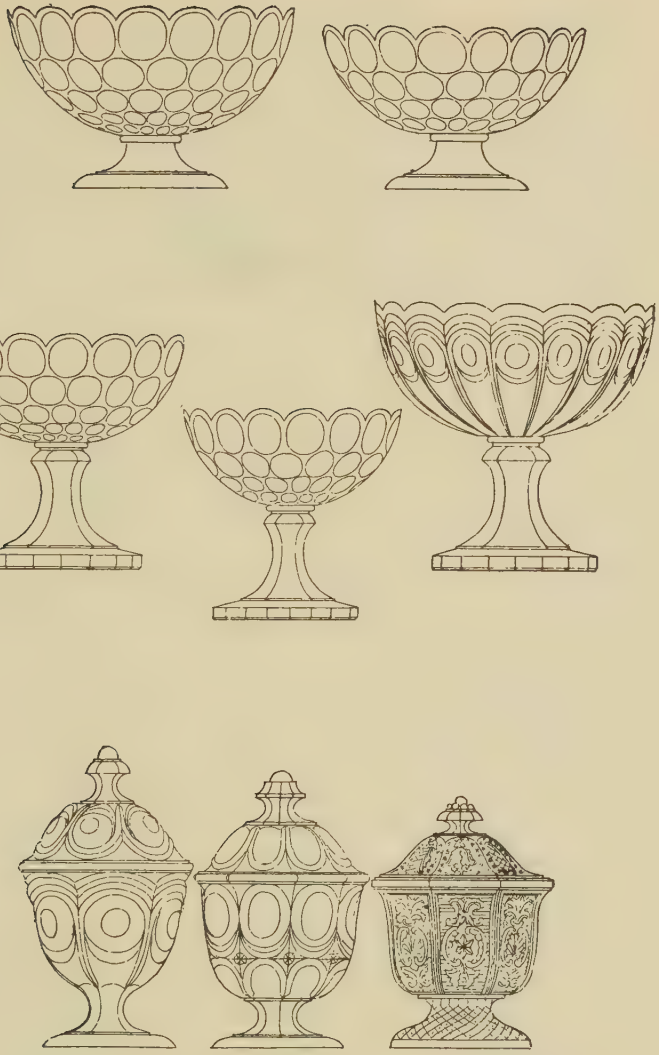


Plate 44

PUNTY BOWLS, LAWRENCE COMPOTE AND SUGAR-BOWLS

wich, which were pressed in two separate parts, and welded together with a gathering of hot glass: that is, in Sandwich candlesticks the seam-marks left by the molds do not run from top to bottom, while in the New England sticks they do. Of course these patterns belong to a comparatively late period, and earlier Cambridge pieces may have been pressed in the same way as those from Sandwich.

Plate 45

DESIGNS FROM NEW ENGLAND CATALOGUE OF PRESSED GLASS, *c.* 1869

MOLDED GLASS

PERHAPS no question has intrigued the glass collector more than that of the source and place of manufacture of contact mold, or more particularly, three-section-mold glass. This typically American product is endeared to the hearts of collectors in this country by the beauty of its designs and the pleasing texture and soft contours of the glass itself. It has been variously called Stiegel and Stoddard, and more lately Kensington. While the possibility of its having been made at the Stiegel factory was admitted by Hunter in his authoritative work on Stiegel glass, even he could not identify it positively, as he was able to do in the case of many other specimens; and he suggested that contact-mold glass might have come from some of the factories that followed the closing of the Stiegel works. That this brilliant ware, the bulk of which is found in clear white, could not have been made at Stoddard is evident; the Stoddard product was bottle glass in green or brown. Neither has it been proved that the factories in that town blew their bottle glass in molds of this kind.

Three-section-molds were probably used first in the late eighteenth century, and continued in favor until the middle of the nineteenth; and undoubtedly glass was made in this manner in many factories widely separated. In any period there were prevailing styles in glass, as in other things, and the glass-houses turned out the kind of wares that were in vogue. Recent in-

vestigations have attributed some of this molded glass definitely to Keene, New Hampshire and Mt. Vernon, New York.

During the early years of our republic, and especially just after the War of 1812, earnest efforts were set in motion to avoid the necessity of importing articles from England, and to encourage American manufacturers. With this end in view cheaper imitations of the more costly English imports were devised. There can be no doubt that the quilting and ribbing — the commonest of the three-section-mold patterns was an attempt to copy the expensive diamond-point cutting and ribbing of the English and Irish cut glass. The result was a less costly, but nevertheless attractive, product.

The idea has been advanced by recent students of the subject that some of this molded glass was made at the New England Glass Co. The advertisements shown in Plates 25 and 26 offer very good proof that it was. A summary of the molded glass listed in these two announcements shows the following to have been made at Cambridge:

Quart and pint decanters, with ball and prest star stoppers
Quart, pint, one-half and one-third pint tumblers
Castor bottles — peppers, cruets, soy cruets and mustards
Liquor bottles
Quart, pint, and one-half pint jugs
Fan-end and octagon salts

Of these items the liquor bottles were possibly molded in two-part molds in the manner of the familiar historical flasks, and the salts, being open, could have been blown in a one-piece mold and withdrawn without

the necessity of opening the mold. As for the jugs, tumblers, and decanters, they could have been blown in small pattern molds and expanded or in full-sized contact molds made in several sections. Inasmuch as contact mold glass was being made at this very period in Keene and Mt. Vernon, it is not unreasonable to assume that here we have another source of the three-section mold glass known to collectors: this in face of the fact that not a single authenticated piece of this ware can be attributed to the New England Glass Co. In one instance only has a specimen of known origin shown evidence of having been made in a contact mold. The lower part of the body in the loving cups made for Mr. Dale and Mr. Leighton has a twisted ribbing that could not have been formed in any other way, because the surface of the interior follows out the pattern on the outside in the manner of molded glass.

The item " pully ring decanters with ball and prest star stoppers " is particularly enlightening, for it is these two kinds of stoppers that are invariably found with quilted and ribbed decanters wherever the original ones have been kept. The ball stoppers have figurations to match the patterns of the decanters.

That molded glass was a favored style in this period is further shown by an advertisement of Boston and Sandwich glass in the *Boston Commercial Gazette* of March 5, 1827:

" Also, packages of glass for exportation together with an extensive assortment of Cut, Plain and Moulded Flint Glass Ware, manufactured by the Boston and Sandwich Glass Co. constantly for sale by Deming Jarves, No. 3 Phillips' Building."

This immediately opens up the question as to whether these same objects did not also come from the Cape Cod town, and whether there will ever be any means of identifying them. The only pointer towards identification of New England specimens is the unusual weight in proportion to the size and thickness, and the metallic ring previously referred to. That three-section-mold glass varies greatly in weight and quality everyone must have observed who has handled many pieces of it. Some of the flips and decanters are thin to the point of delicacy, while others strongly resemble known pieces of New England glass in this respect.

Three-section-mold castor bottles in numerous different designs are fairly common, and, as far as is known, have never been attributed to any factory. The pewter castors which hold them may sometimes be traced by marks to makers of the twenties and thirties, as, for instance, Roswell Gleason and I. Trask. It may therefore be assumed that these are the type of bottles meant in the auction list.

The molded salts are also well known to collectors, and, like other glass whose origin is a question, they have been called Stoddard. A group of " fan end " salts is illustrated, not because they are pedigreed New England glass, but because they are undoubtedly the type of salts meant. They do, moreover, bear the earmarks of this factory. The glass is rather thick and heavy, of a slightly bluish cast, and in one case has been carefully cut in little points around the top — an attempt at making a good finish that is characteristic of New England work.

Plate 46

Author

Types of Early Nineteenth Century "Fan-end" and Octagon Molded Salts

ENGRAVING AND CUTTING

BEAUTIFULLY engraved ware was always a characteristic product of the New England Glass Co. During the early period it was done on rather heavy glass. In consequence the engraver was able to cut into the surface so deeply that his designs had a three-dimensional effect. The designs were pictorial rather than conventional, since realism was the goal toward which all craftsmen worked in the mid-nineteenth century. In technique the work was superior to the best rock crystal engraving of the present day; in expression it displayed a *naïveté* charming to this later generation.

In the closing years of the factory the fashion changed from heavy substantial glass to ware of almost paper-like delicacy. Where goblets had been formed with hollow cut stems, and richly engraved bowls, they were replaced by fragile straw stems and thin bodies. This change demanded a different style of engraving. Tiny conventional festoons and sprays of flowers were combined with gossamer lines and dots. Objects of lace-like daintiness and beauty emerged from the engravers' hands. The airy tracery of the designs was no less a marvel than the more solid work of the earlier period. In both cases the engraving was done on the finest, clearest crystal glass that could possibly be produced. Recognized examples of this glass should be preserved as evidence of truly beautiful handcraft, coming from a period of meagre artistic output.

One of the most conspicuous figures in the engraving department was Louis Vaupel, who was its superintendent for many years. He came to the New England in 1856, but he had already attained the rank of an expert in Germany before that time. Many pieces of his work have survived, and are in the possession of his descendants, and a portfolio of his drawings and patterns gives further evidence of his skill. The sketches in this collection depict flowers and trees in endless variety, and hunting scenes, and other animal groups, drawn with painstaking fidelity. These naturalistic motives were actually reproduced in engraving, with a wealth of detail that is impossible to describe.

The difficulty of doing skillful work in this medium cannot be overestimated. While the designs were sometimes copied or transferred on the object to be engraved, the moment the engraver's wheel touched the glass, the field was obscured by emery powder and oil, and it was necessary to work by feeling rather than by sight. In cheaper engraving the patterns were drawn on paper that was moistened and stuck to the inside of the glass, where it could be seen through it.

Just after the Civil War Mr. Vaupel worked at intervals for a year engraving one superb ruby goblet in the Bohemian style. A photograph of this piece is shown in Plate 47, but it gives only the faintest idea of the depth of the cutting, the perfection of the tiny figures, or the beautiful red and white coloring of the original. The engraving represents a hunting scene. It is full of minute figures of men and animals. There is a hunter with a stag, not more than half or three-quarters of an inch high, and two other men on horses small in proportion; there are dogs and a stag at bay, and in among the trees and grass are little animals,

Plate 47 *Mr. Louis H. W. Vaupel*

LARGE RUBY VASE. ENGRAVED BY LOUIS VAUPEL IN 1865

some not more than a sixteenth of an inch long — a squirrel, pheasants, an owl, a snake. In the distance are hills and a castle. The detail is so marvelous that muscles on the horses are accurately portrayed, and the wee faces and details of clothing are perfect. Upon its completion Mr. Vaupel was offered for this masterpiece one hundred and fifty dollars in coin gold at a time when gold was at a premium.

At the time of the Centennial Mr. Vaupel was chosen to decorate the pieces of New England glass that were sent for display there. Among other things he made a set of a dozen goblets, each with a different design of historical significance. Each goblet had a pine tree on one side and a palm tree on the other, with such subjects as Bunker Hill Monument, and an Indian in his last stand looking westward over the sea. Unfortunately these goblets were not destined to be kept together: two of them were broken, four were stolen, and the other six were given to officials of the company.

The engraved glass in Plates 48 and 49 is a sample of Mr. Vaupel's work on tableware, and is characteristic of the Centennial period. The little ruby wine-glass in Plate 50 is signed with his name, and was doubtless made for a sample. Mr. Vaupel remained with the New England Glass Co. until his retirement in 1885. At that time there were about a dozen men in the engraving department.

Much light has been thrown on the patterns used by the discovery of a pattern-book with fine pen drawings done by Henry S. Fillebrown in the sixties and seventies. There are more than four hundred numbered designs in this book, most of them being Mr. Fillebrown's own. The reproduction of a page in Plate 51 and the three drawings for wine-glasses in Plate 52 give an idea

Plate 48

Mrs. Charles X. Dalton

ENGRAVED GLASS OF THE CENTENNIAL PERIOD

Plate 49

Mrs. Charles X. Dalton

ENGRAVED WATER PITCHERS AND CELERY HOLDER, *c.* 1875

Plate 50 *Author*

Mid-nineteenth Century Wine-glasses
a. Green and clear glass
b. Light ruby
c. Ruby, engraved and signed by Louis Vaupel

Plate 51

Mr. Sylvanus L. Fillebrown

DESIGNS FROM ENGRAVER'S PATTERN BOOK, 1850–70

Plate 52

Mr. Sylvanus L. Fillebrown

DESIGNS FROM ENGRAVER'S PATTERN BOOK, *c.* 1860

of the painstaking care employed in making a catalogue of this kind for reference. A hasty perusal of the pages shows that the following motives were used in many ways: grape, ivy, oak and acorn, strawberry, morning-glory, rose, thistle, wheat, clover leaf, wild rose, lily-of-the-valley, fern, horn of plenty, and stars, Greek key and fans.

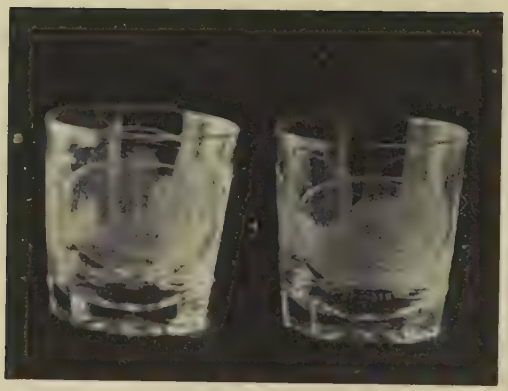
In addition to these floral and conventional patterns Mr. Fillebrown used animal and bird figures with a freedom that is astonishing. The compote in Plate 53 is perhaps one of his most remarkable pieces. It has twelve panels, each different, groups of chickens alternating with clusters of flowers. In the smaller pieces deer and hunting scenes are marvelously depicted. The best Bohemian glass work has not surpassed the spirited realism of this engraving done at the New England. The tumbler with fishes in Plate 54 fascinates by the minute clarity of the engraving and the feeling of motion that it arouses. There are twenty-one little fishes, each about an inch long, swimming about this tumbler over a bed of pond-lily pads and rushes. Each tiny scale is marked with steady hand and sure skill. The glass itself is very ordinary, and the work was probably an experiment in craftsmanship. The other glasses made by Mr. Fillebrown are of beautiful metal. Several show landscapes of German scenes. The large sugar-bowl is also decorated with outdoor subjects.

The skill of Henry Leighton was displayed in similar fashion. A set of heavy tumblers made by him has been separated among the members of the Leighton family. One of them bears the Leighton coat-of-arms. The hunting scenes are particularly vivid. The one in Plate 56 shows dogs chasing a rabbit in an endless circle around the glass. A ruby pitcher owned by Mr. Leigh-

Plate 53

Mr. Sylvanus L. Fillebrown

EXAMPLES OF ENGRAVING BY HENRY S. FILLEBROWN



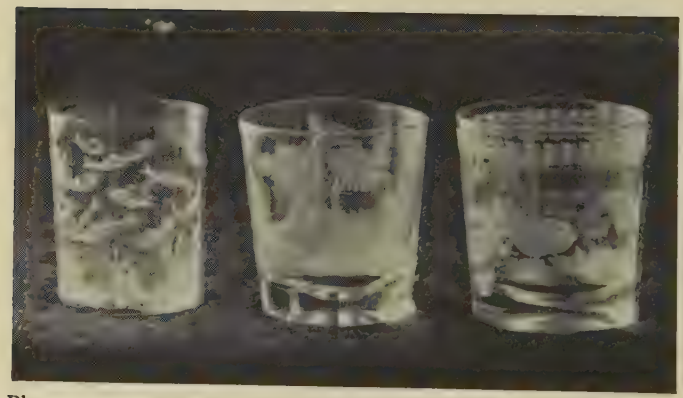


Plate 54 *Mr. Sylvanus L. Fillebrown*

ENGRAVED TUMBLERS, 1860–70

Plate 55 *Mr. Sylvanus L. Fillebrown*

ENGRAVED GOBLETS, 1860–70

ton's niece was probably engraved by him. In the hunting scene cut through the ruby to the white glass, tiny men, horses, dogs, and deer present a picture of activity amazingly clear and lifelike.

Plate 56 *Mr. Thomas Leighton, Jr.*

TUMBLER ENGRAVED BY HENRY LEIGHTON

The cutting department was always an important feature of the glass-works. It was operated continuously from the beginning in 1818, when there were twenty-

four cutting mills, until the closing of the factory, when as many as one hundred men were employed in this one branch of the business. As early as 1819, the editor of *Niles's Register,* commenting on the cut ware of the New England Glass Co., said it was "superb, fully equal, when actually compared with the best foreign specimens."

One of the first superintendents of this department was John L. Hobbs, who was advanced to the position in 1825 on the day when he became twenty-one years old. Mr. Hobbs was a young man of extraordinary capacity. He was later well-known in the glass world as one of the founders of Hobbs, Brockunier & Co., of Wheeling, West Virginia.

The early cutting was comparatively simple, giving an impression of rich solidity rather than brilliance. It was applied to every description of ware, both white and colored, and was frequently combined with engraving, to produce more elaborate effects. The fame of the New England Glass Co., in fact, depended largely upon this part of the manufacture.

Cut glass, no matter how fine, is suffering a period of eclipse at the present day. We have been surfeited with the over-ornate ware of the late nineteenth century, which was cut and re-cut until it lost all semblance of its original shape. This kind of glass is illustrated in its most tiresome form in a catalogue from the New England cutting department printed in 1884. The designs were almost exclusively hobnail diamond, strawberry diamond, and the stars, rosettes, and fan cuttings that were copied so closely in late pressed glass. These patterns were used on every article of tableware, and almost invariably covered the entire object. The strawberry diamond was a continuous pattern of diamonds

Plate 57

Miss Marion Pike

Ruby Toilet Set, Cut, Engraved, and Gilded

Plate 58

Author

a. Blown carafe and tumbler
b. Cut compote in strawberry diamond pattern
c. Cut goblet from the Centennial set

formed by deep lines, re-crossed by lighter lines. It was used from an early period, and is now sufficiently outdated to be pleasing in appearance. The bowl in Plate 58 illustrates this style of cutting, and, as was always the case with glass blown for cutting, it is of the clearest, finest, flint metal.

Besides ordinary shapes for table service, the catalogue mentioned illustrates vases, rose bowls, lamp shades, sweet-meat sets that, put together, formed butterflies or flowers, knife rests, and shoes. Cut butter dishes were favored in the eighties, and celery and spoon holders were made both as vases and trays. Ornamental bowls and bon-bon dishes were made in every conceivable style and shape.

While the cutting was confined almost exclusively to straight-line work, it must be confessed that the technique and the quality of the glass has never been surpassed. At the time of the Centennial an elaborate set of cut glass ware was made for exhibition, decorated with all the cutting the pieces would bear — according to the standards of the time. This set may be seen in Plate 59 and one of the goblets is shown in the photograph in Plate 58. Mr. John Lowry, as superintendent of the cutting department, had charge of this work, and he salvaged the goblet, after it had been ruined by a chip on the edge. The rim has been ground off, but it is an interesting memento of the occasion. A description of the New England's exhibit at the Centennial, from a contemporary paper, shows that practically the whole display was of cut and engraved crystal. Much of it was cut in diamond or diamond and block pattern, or engraved with flowers, fruit, and vines. Some pieces were massive and heavily cut, while others were of a fairylike delicacy, ornamented simply with little

Plate 59

THE NEW ENGLAND GLASS CO. EXHIBIT AT THE CENTENNIAL

wreaths. Elaborate fruit stands figured in this display, and every kind of tableware, including wine-glasses, goblets, pitchers, colored finger bowls, preserve dishes, decanters, cheese dishes, and so on. Toilet sets are especially noted, and liqueur sets and salvers of fragile glass. This exhibit was really the beginning of the period of elaborate glass-cutting, as the demand for this kind of ware had been comparatively small up to that time.

No doubt later collectors will cherish the cut ware of the last two decades of the New England's manufacture for the perfection of the glass and the enormous amount of work put into it. There is no denying its brilliance, and the swing of fashion will certainly bring it into favor once again. Meanwhile, during the present enthusiasm over early machine-made products, it is well to remember that engraved and cut glass was the ware to be found on the tables of the well-to-do, and the ware upon which a great industry based its success.

PAPER–WEIGHTS

THROUGHOUT the Victorian era the fancy glass worker found in the paper-weight an object for the exercise of his ingenuity. It was particularly suitable for gift-giving and he could make it an expression of his individual fancy. Many paper-weights have been preserved for sentimental reasons as well as for their beautiful coloring. The majority of New England Glass Co. weights are of millefiori glass, but gorgeous apples and pears, and others of cut and pressed glass came from the company's work-rooms.

The earliest paper-weight that has been authenticated as being a product of this factory is illustrated in Plate 60. It shows heads of Queen Victoria and her consort, and must have been made to commemorate the great London Exposition of 1851, as the date would indicate. The design is pressed intaglio on the reverse side of the weight and then treated with hydrofluoric acid. The shape was obtained by cutting. The glass itself is crystal clear, and the heads as seen through it appear in silvery bas-relief like a cameo. While not so valuable, this kind of a paper-weight is far more rare than the millefiori weights so popular during the Civil War period.

Millefiori or mosaic glass originated in classic times. The word is from the Italian *mille,* thousand, and *fiori,* flowers — glass of a thousand flowers. It is made of bits of colored glass almost too small to be seen by the human eye. Beads made in this manner are found in

tombs of the ancient Egyptians, and all sorts of wondrous glass vessels were created in mosaic by the Greeks and Romans. The Venetian glass-workers in

Plate 60

Author
Mrs. E. H. Skinner

PRESSED AND BLOWN PAPER-WEIGHTS

Murano, having re-discovered the art, carried it to a far higher degree of perfection. From there the knowledge spread through Europe. The town of St. Louis in Alsace-Lorraine, France, is credited with making the first millefiori paper-weights about 1840, but the

finest specimens came from another French town — Baccarat.

From the daughter of François Pierre we have learned much about the manufacture of the New England Glass Co. paper-weights. Mr. Pierre received his training in France and came to this country at an early age. He was a fancy glass worker, blowing birds and ships, making objects of spun glass and paper-weights. This work was done in his own workshop — " at the lamp," according to the expression of the time. The " lamp " was an apparatus with two flames or torches directed towards each other. It was used for re-heating the bits of glass used in fine work.

The millefiori weights were composed of slices of rod or cane arranged in a pattern. The rod was made up with many colors running through it, for all the world like a stick of fancy candy, and was cut off bit by bit as required. These colored sticks were at first imported from abroad, but were later on put together at the New England factory. The manner of their manufacture was simple. Long slender rods of different colors were arranged in a pattern, the whole fused together while hot, and the welded mass drawn out to any length desired. With a workman holding each end on a pontil-rod it would often be pulled out for as much as fifty feet. In doing this none of the pattern was ever lost, even when the resulting rod was not more than an eighth of an inch in diameter, such was the consistency of the metal. A hollow was occasionally left in the pattern, and this would continue to be a bubble, no matter how far the rod was stretched. Thus the first arrangement, so easily put together, became almost microscopic by extension.

In making a weight, a gathering of clear glass was

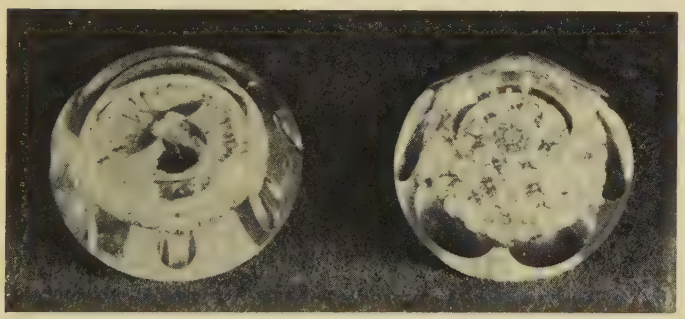
shaped in a ring mold for a base. The little bits cut from the rods were taken up with tweezers or forceps, heated in the lamp, and then placed upon the base, which was still hot and soft. In the case of Mr. Pierre's weights he must have re-heated the bases, as they were prepared at the factory. The beauty of the design depended upon the workman's skill and ingenuity. Some of the millefiori weights are made in a hit-or-miss fashion, while others are patiently arranged in very beautiful patterns.

The paper-weights with fruit and flower centers were made in much the same manner. Bits of cane were cut to simulate petals and leaves. To further heighten the illusion of reality the marks of veins were impressed on the leaves with little instruments shaped for the purpose. This was very delicate work and had to be done carefully. The tiny apples or pears were formed from solid pieces of cane squeezed into shape.

When the design was ready, the whole weight was covered with another gathering of hot clear glass, which was rounded into a convex shape with a wooden spatula. It was then polished and, in the case of New England paper-weights, ground off smooth on the bottom. Sometimes the weight was cut on the top and sides with circular depressions that multiplied the image inside. In any paper-weight it appears highly magnified, as may be easily ascertained by looking at the very small design underneath. At least one descendant of a New England glass-worker can remember being allowed as a child to arrange the bits of glass in patterns for paper-weights. Doubtless she was permitted to take home the resulting products of her fancy.

The large apple and pear paper-weights like those in Plate 60 were blown from tubes of glass, red on one

Mrs. W. D. Barker



Mrs. Damon E. Hall

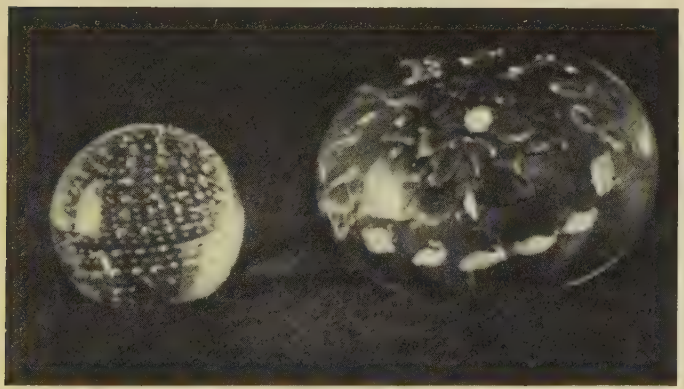


Plate 61 *Mr. Sylvanus L. Fillebrown*

PAPER-WEIGHTS, 1850–75

side and yellow on the other. When expanded to the desired size they were drawn in at the ends and finished with dots of darker glass for blossom and stem. The expansion caused the fusion of the two colors in the tube, producing the shading that makes these fruit paper-weights so beautiful. When blown, the fruit was welded to the heated base of clear glass, which had been shaped in a mold. Leaves were sometimes added, as in an apple weight made by Mr. Pierre. These weights were probably made in other factories, but they are so frequently found in the homes of descendants of the New England Glass Co. men that they may be considered a characteristic product.

The period from 1860 to 1875 was the time of the paper-weight's greatest popularity, although one millefiori weight has been found dated 1854, and similar pieces were no doubt made before that. On account of the amount of hand work involved these paper-weights were never very cheap. Millefiori weights probably cost not less than five dollars each. Henry Leighton, in a letter written to his father from Meriden, Connecticut, January 9, 1877, says: "For Tom's paper-weight goods I think I shall get between six and seven dollars according to Mr. Brown's estimate."

Another type of paper-weight that was popular with the glass-makers, especially for presentation, was the book weight. This was a block of crystal clear glass, cut in the shape of a book, and decorated with cutting or engraving — often with the name or monogram of the recipient. A granddaughter of John H. Leighton has one of these mementoes that was made for her father, humorously inscribed: "Life of W. W. Pike."

Pressed glass paper-weights in the form of little English bulldogs were a product of the period just

after the Civil War. These were made in black and in milk-white, and were, it is believed, a specialty of the New England Glass Co. The one illustrated in Plate 60 was obtained from the sister of a former workman.

A late form of pressed weight was a miniature in glass of Plymouth Rock, with the date 1620 impressed on the side. These were sold as souvenirs during the closing years of the company.

LAMPS

FROM its very beginning to its closing, seventy years later, the manufacture of lamps was an important part of the business of the New England Glass Co. Bishop in his first mention of the factory in 1818 speaks of "Grecian lamps, chandeliers for churches, antique and transparent lamps, etc."; and the company's first advertisements list entry lamps, moonlight lamps, coach lamp glasses, candle shades and globes of all kinds. These early descriptive terms baffle the imagination of the collector, and yet, the lamps themselves might be types well known to us, if we could only see them.

The advertisement of January 15, 1825, shows that lamp-making was a prominent feature of the manufacture. It lists: "Superb Lustres, for mantle pieces — Chandeliers for Churches and Halls — Entry Lamps, various patterns, with and without balance balls — cut and plain Stand Lamps, and Lamps for Mirrors, &c. ground and plain Shades and Chimnies, for Astral and other Lamps."

In December the company announced "Entry Lamps, new patterns, with bronz'd and lacquer'd trimmings." These were doubtless the hanging lamps which may be distinguished in the picture of the company's salesroom in 1855. This type was made first for candles, then for whale-oil and fluid, and the manufacture was continued into the kerosene period. The glass was usually etched and engraved.

Plate 62 *Mr. Sylvanus L. Fillebrown*

BLOWN AND CUT LAMP WITH PRESSED BASE

Lamp bases were among the earliest of pressed objects. Tops were more often blown and ornamented by cutting or engraving. At the time of the greatest popularity of the glass whale-oil lamps it is said that the lamps made at the New England were indistinguishable from those produced at Sandwich. The two factories copied each other's designs to such an extent that men who had worked in both places were unable to tell one from the other. A large proportion of the so-called Sandwich lamps should really be attributed to the New England Glass Co. A glance at the specimens illustrated will show types that any collector would place in the Sandwich category. Probably the only distinction would be the greater weight in proportion to the size of the New England pieces.

The writer has found no authenticated specimen of an early colored lamp, although colored glass was common in the early output. Further investigation may lead to the discovery of such lamps. The known colored lamps from East Cambridge are a product of the kerosene age. By far the greater number of these are ruby combined with clear glass. It is said that this was the only color used there in lamps for plating and cutting away, while a variety of colors was used in this manner at Sandwich. Some of the colored globes on Sandwich lamps were undoubtedly imported, but the New England appears to have used its own work.

An interesting group of lamps is shown in Plate 64. a. has a light ruby bowl with an opal base; b. has a translucent light green bowl with a vine decoration in gold, and a black base; c. is ruby over clear white; and d. has an unusual bowl of ribbed clear glass over spirally blown ruby and white. The author has seen a lamp like the last one with green and white spirals. The

Plate 63 *Mrs. W. D. Barker*

NEW ENGLAND LAMP SHOWING RESEMBLANCE TO SANDWICH TYPES

bases of these lamps are typical and are found with bowls of every style. For some reason the square base was always preferred at this factory. Bowls of clear glass, pressed or molded, are very common.

These lamps, while often pleasing in color, are certainly not well-proportioned, as a rule. The habit of combining bases and tops in a hit-or-miss fashion could not result in a unified whole, as in the case of whale-oil lamps, where the relation of the parts was more carefully considered. In fact, the kerosene lamps were often sold in parts, by the dozen, and assembled according to the tastes of lamp manufacturers. They were also sold complete from the warerooms if desired, and collars and necks of brass were made in the trimming shop for that purpose.

Shades and spangles were made and sold by the dozen, as well as being assembled with the lamps for the retail trade. Gorgeous chandeliers with cut spangles and balls were a feature of the New England manufacture throughout the century. The discovery of some chandelier designs formerly owned by Mr. Lowry, the foreman of the cutting shop, shows that many of the ideas for this work were derived from English sources. One book is an English catalogue of 1869, but some loose sheets are numbered by hand, and appear to be the illustrations used for taking orders. The one reproduced herewith is a sample of the extremely ornate chandeliers of this period. It was of course intended for a gas fixture. It is only fair to add that these magnificent affairs of cut glass were far more beautiful in reality, especially when lighted, than they can possibly seem to be in a picture. The fact that their manufacture has recently been revived attests the undying popularity of this brilliant glasswork for public places.

Plate 64

Mrs. W. D. Barker

EARLY COLORED KEROSENE LAMPS (p. 142)

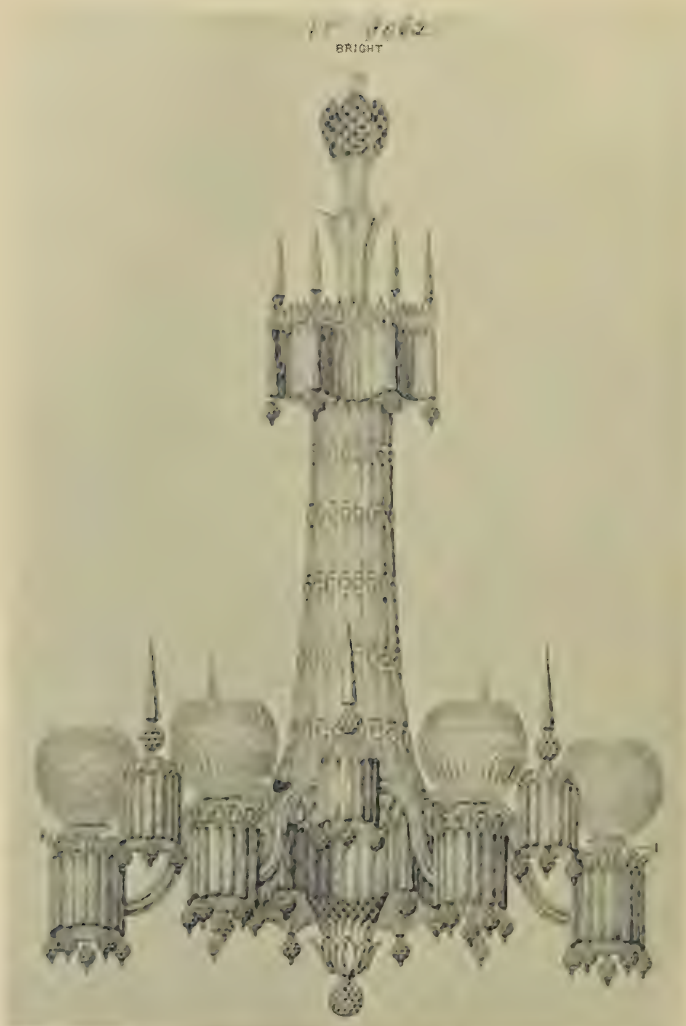


Plate 65

PATTERN FOR CUT GLASS CHANDELIER, *c.* 1865

Plate 66 *Mr. Thomas Leighton, Jr.* *Mr. Burton N. Gates*

a. Late period lamp decorated by George L. Noyes
b. Lantern marked "N. E. Glass Co."

The lamps of the late period of the New England have very little artistic value. The example in Plate 66 is familiar enough to any of us who have used kerosene lamps. The shape is ugly, and it is overdecorated in the manner of the eighties. It is shown only because a great deal of this work was turned out, and because the painting on the base and shade is the work of George L. Noyes, who afterwards became a Boston artist of note. He was employed by the company to do hand-decorating when a very young man, first making his way.

COLORED GLASS OF THE EIGHTIES

DURING Mr. Libbey's term as superintendent of the New England every effort was made to produce novelties both in color and form, to meet the competition in this kind of glass-making. The Mt. Washington Glass Co. in New Bedford, the Boston and Sandwich Glass Co., and the Hobbs, Brockunier & Co., of Wheeling, West Virginia, among others, were turning out all sorts of fancy colored ware, blown, cut, and pressed; and the popular taste demanded rich and striking colors. Foremen and workmen of the New England were encouraged to experiment.

Several characteristic styles were the result. The *amberina, Pomona,* and *peach blow* glass may still be found. *Agata* and *corn* glass were made, but large quantities could not have been sold. When one style waxed and waned, another was invented, and the market kept supplied with something new.

" Amberina art glass " was the first of these inventions. According to Mr. Robert Gundersen, superintendent of the Pairpoint Glass Works in New Bedford, who was connected with the Mt. Washington in the eighties, amberina was an imitation of their rose amber. On the other hand, peach blow originated with the New England, although he remembers its being made at New Bedford in 1889. He says that a controversy arose over the rights of each company to use the other's process — a dispute that was settled by a compromise allowing each one to continue the manufacture.

According to the son of Mr. Andrew Long the discovery of amberina was an accident for which his father was responsible. Andrew Long was one of the most skilled glass-blowers ever employed at the New England. One day when he was taking a gathering of glass from the pot, his gold ring slipped from his hand and was melted into the lump of glass on the end of his blow-pipe. This glass was re-heated several times in the course of making the article in hand, and Mr. Long soon noticed the unusual color that was developing. When he missed his gold ring he realized what had happened. He reported the occurrence to Mr. Libbey, who set him to work with the gaffer, Mr. Leighton, and with Joseph Locke, one of the designers, to discover a formula for producing the new color.

In due time the process was discovered. It was patented by Mr. Locke, July 24, 1883. In his specifications he claimed that he had invented a glass of homogeneous base in which different colors blended together could be developed by re-heating at the "glory hole" parts of the object being made. The base was an amber glass containing gold, and the patent claimed that ruby, violet, or a greenish or bluish tinge could be developed.

The ware commonly known as amberina is a straw color or pale amber shading to rich ruby — generally, though not invariably, with the light tone at the base or center of the object. It is a heavy lead glass with a metallic ring and a lustrous finish. It is almost without exception blown and has a ground-off pontil mark. Similar glass from other factories does not show as deep a ruby, and in some cases is made by mechanical means rather than by hand blowing. The surface of amberina glass is often given added brilliance by a figuration or waviness produced by the use of an "ex-

Plate 67

Author

AMBERINA GLASS

panded " mold: that is to say, the glass is first blown to a small bubble in a miniature mold, marked with the figuration, then removed and expanded to three or four times the size. This method was the one used by Stiegel in making the familiar " Venetian diamond " salt-cellars. The commonest expanded-mold pattern in glass of the seventies and eighties is a sort of little round " eyes " (the word is used for want of a better), so often seen in blown finger bowls, tumbler, and pitchers. Amberina glass is found, too, with a wide whorled ribbing.

In one instance only the writer has seen a real amberina fashioned by pressing. It appears in a pair of vases five and three-quarters inches high and astonishingly heavy in proportion. Each vase actually weighs one pound.

The violet tinge has been seen in a beautiful low vase that bears all the earmarks of the New England factory in quality, metallic ring, and finish.

This glass became exceedingly popular. Quantities of it were sold during the ten years of its vogue. It was rather expensive at first, tumblers selling for nine to twelve dollars a dozen at wholesale and pitchers for eighteen to twenty-four dollars a dozen. A glass containing coin gold could never be very cheap. The earliest and best pieces are almost wholly red, while the late ones are mostly yellow with a dash of ruby at the top. As the style passed tumblers were sold off for as little as a dollar a dozen.

Now after nearly fifty years the appeal of gay colors is strong again. Amberina has been revived by the Libbey Glass Co. of Toledo. The old ware is worth saving. It is far more attractive on the table than it appears at first glance, and in owning it one has the satisfaction

of knowing that it is a worthy product. The author has seen pitchers of all sizes, tumblers, mugs, finger bowls, fancy dishes of various shapes, celery holders, toothpick holders, and vases.

While amberina was pronounced in coloring, Pomona was subtle, delicate, both in tone and design. Basically it is a clear glass with the whole surface ornamented by etching and staining. Ordinary specimens have a band around the top nearly an inch wide stained to an old gold color, that shows a bluish iridescence in the light. In addition there may be a garland of flowers and leaves running around the body of the piece — the flowers a pale iridescent blue, and the leaves straw color. The background is entirely covered with etching bitten out by acid. The glass itself is blown in a part-sized mold, then expanded, so that its surface is irregular with little undulations on the inside. This unevenness helps to catch the light at different angles, thus emphasizing the shimmering color.

Pomona glass with its appearance of fragility and grace had a peculiar degree of refinement. After its introduction in 1885 it sold well for a time, although it was never a popular favorite like amberina. Pomona was made for only a short time, probably on account of the excessive cost of production. A great deal of time was required for the hand work of blowing, staining, and etching even a small piece. Pomona glass is now in the limbo of forgotten things, like the dodo. It would no doubt take a long season's hunting to unearth a single specimen. It was made into such articles as tumblers, lemonade glasses, shallow and deep bowls, and pitchers. By its very nature all these are more ornamental than useful. Little curly feet were frequently added, and the edges of bowls and pitchers ruffled in

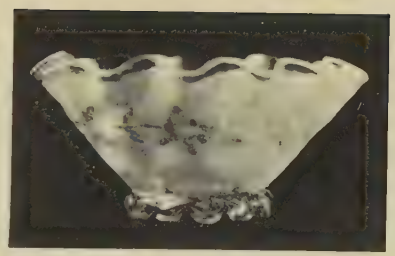


Plate 68

Mr. Sylvanus L. Fillebrown
Mrs. Charles X. Dalton

Plate 69

Author

a. Peach blow match holder
b. Engraved bowl of opaque rose over opaque white
c. Agata tumbler

and out in such a manner that they do not suggest hard usage.

The peach blow glass took its name from the Chinese peach blow porcelain, and particularly from a famous specimen of that ware which was discovered at about this time. It probably represented an attempt to imitate the color of the Chinese porcelain, too. The New England peach blow is one of the loveliest and most unusual things in American glass. In color it shades by imperceptible degrees from white to a deep rose. In finish it is sometimes glossy, and sometimes dulled to a non-reflecting surface by a bath in hydrofluoric acid. The dull-finished peach blow shows the mellow softness of a delicate bit of biscuit porcelain, and with its flowing color and simple lines is a delight to the eye and to the touch. It is also called wild rose — a term that aptly describes its appearance. This glass, like amberina, has a ground-off pontil mark and a noticeably tinny ring. The story of the discovery of this color is unknown. It may have been due to an accident, or to the experimental mixing that was going on continually at the glass-house.

In spite of its remarkable beauty peach blow was a failure commercially. The public taste still lingered over the charms of amberina. In vain did the salesmen try to make a go of it. Mr. Putney, who in the eighties traveled through New York and Pennsylvania, and even to Washington, for the glass company, had at one time a table with hundreds of pieces of this glass in a salesroom at Pittsburgh, and he was unable to sell it at all. The public did not like it, and in a short time its manufacture came to an end. Very little of this ware was made, and still less has survived to the present day. It is one of the truly rare things of American

Plate 70 *Mrs. Charles X. Dalton*

a. Peach blow vase. *b.* Opal vase. *c.* Transfer-printed bowl. *d.* Turquoise bottle. *e.* Black glass, gilded

glass-making, and the discovery of a bit of it should give any collector a thrill of joy.

Closely related to the peach blow or wild rose was the agata glass, which has been described as "wild rose with a spattering of oil." This oil on the surface of the glass gave a slightly iridescent mottled effect, such as would be obtained by scattering drops of oil on a pool of water. The writer has found some tumblers that answer this description, and one of them is shown in Plate 69. A vase of the same ware is in the hands of one of the glass-blowers' families, although its owners did not know it by the trade name. There seems to be no question that both are examples of the rare agata glass.

Corn glass, as well as Pomona, was the invention of Mr. Joseph Locke, the English designer referred to above. As yet the writer has found no piece of this type, but it has been described by Mr. Putney, who remembers it. It was bright yellow in color, and fashioned in little kernels to represent an ear of corn. This effect was obtained by blowing the glass in a contact mold, and cutting it off at the top to the shape desired. Very little of the corn glass was made, as it was the last of the company's colored novelties, brought out just before the factory closed in 1888.

THE GLASS-WORKERS

AN interesting picture of life in the glass-house neighborhood in the period just before the Civil War has been drawn by Mr. George W. Carter, whose father, George Carter, was a skilled blower, and whose uncle, William, was also a glass-maker. At that time the majority of the New England workmen lived on Winter, Gore, and Bridge Streets, and thereabouts. It was an attractive section, with well-shaded streets and pretty little homes owned by the glass-workers themselves. Many of the cottages were beautified by gardens, and they presented a suburban atmosphere wholly gone from East Cambridge today. Some of the old families are still living in this part of the town, although business has crept in around them, and Leighton's Court, on the site of the old New England Crown Glass Co., is called " Yankee Village," because it has resisted the invasion of foreign arrivals.

Mr. Carter says that the glass-blowers were the most prosperous workmen in the community. Their pay was very high, often amounting to as much as nine or ten dollars a day, which, of course, would be equal to many times that sum today. The blowers felt themselves superior to cutters and other decorators, whose work they did not consider as important, and whose earnings were far less. When the weekly holiday came around on Saturday most of the men went " over the bridge " for a drink of beer. This was a practice to which they had been brought up in the old country. They made a

festive occasion of it, dressing in their best — and their best meant a fifty-dollar suit and a tall beaver hat. Few of the men over-indulged; hard drinking was the exception rather than the rule.

At times the glass-blowers worked on night-shifts. Alarm-clocks not being a universal necessity then as they are now, a watchman was employed to go the length of the streets, knocking at every door where it was time for a man's shift to begin, and crying " John Jones! " (or whoever it might be) " Get up and go to work! " The families became so used to this night call that they scarcely roused, but a person who was wakeful could hear the watchman going from door to door, knocking, knocking, and calling to one after another.

The glass-house neighborhood was a little world by itself. Even today, forty years after the closing of the industry, the descendants of the old families are united by early memories, as if they had been related. One is impressed by the fine type of people who made this manufacture what it was. The chronicles of a few of the well-known workmen will not be amiss.

In several instances the history of a family and the history of the company were linked together for the greater part of the century. Father was followed by sons, and even by grandsons. In this trade more than in any other family tradition played an important part. Trade secrets were jealously guarded. After the passing of more than one hundred years the receipt-book of old Thomas Leighton is still kept inviolable by his great-grandson.

The tricks of glass-blowing were often taught to boys who were little more than children. Beginning thus early, their entire lives were spent in and around the

Plate 71

Mr. Louis H. W. Vaupel

A Drawing of the Factory Made by Louis Vaupel in 1851

glass-houses. Pride in fine workmanship was aroused at an early age, and loyalty to the trade and to the company became part of their code. The skilled workmen were more than manual laborers — they were artists; and their descendants look back with pride on their achievements, and cherish the samples of their work which have formed part of the family inheritance.

Plate 72 *Mr. Charles F. Dutch*

Specie Used by the New England Glass Co. During the Civil War

The Leighton family mentioned in a previous chapter holds the most prominent place in the company's history. Deming Jarves speaks of them in his "Reminiscences": "Convinced of importance of scientific skill in their business, they secured some years ago the services of Mr. Leighton and his three sons at a liberal compensation. Besides possessing the best practical knowledge, they had also artistic taste, which enabled them to give elegant finish to their workmanship, and to introduce new and more beautiful patterns into it."

Thomas Leighton was born in Birmingham, England, in 1786. After serving his apprenticeship as a glass-worker — it is said that he began his career at the age of seven — he went to Dublin, where he was a foreman for a short time. Later he became "gaffer" at the Cannongate Works, in Edinboro. It was during his stay there that he was recommended to the New England Glass Co. by a Mr. Staniford. The company, anxious to obtain the best skilled workmen to be found in the old country, sent their agent, Joseph Wing, to Scotland to get him. As the laws of Great Britain prohibited glass-workers from leaving the country, so closely guarded was the industry, Mr. Leighton had to escape to America by a ruse. He sailed to France, ostensibly on a fishing trip; but, once across the channel, he shipped to America, where he took up his duties as "gaffer" in the New England Glass Co. in 1826.

The word "gaffer" in this connection means the superintendent of the glass-house. (It is also used to denote the foreman of a "shop.") Deming Jarves has defined the status of the gaffer when he says that he must have a knowledge of chemistry in order to mix the materials in such a way as to produce the best and clearest glass, and that his personal character shall be such as to command the respect of the workmen.

Mr. Leighton filled both of these requirements. He remained with the company until his death in August, 1849. Of the seven sons, five became glass-workers, while James was a machinist and worked in the mold shop. John came to the New England factory in 1827 at the age of thirteen, after he had already served his apprenticeship at the Cannongate Works. He was a glass-blower and all-round workman, and in 1849 took his father's place as gaffer. Thomas specialized in the blow-

Plate 73 *Mr. Thomas Leighton, Jr.*

THOMAS H. LEIGHTON, FROM AN EARLY PORTRAIT

ing of chemical ware; Peter and Robert were both table glass blowers.

William Leighton was a general workman and understood every branch of the business. He was also a glass chemist, or "metal" worker, and he spent a great deal of time experimenting with colors. One of his objectives was the making of artificial jewelry, which was finished by a firm in Providence, R. I. His greatest achievement for the New England Glass Co. was the discovery of an original formula for ruby glass. Up to that time — 1848 or 1849 — the ruby glass had been imported from abroad and re-melted for manufacture here. William acted as gaffer of the factory for a short time before his father's death. John H. Leighton then became superintendent, a position he was to retain until 1874.

In the third generation, Henry Leighton, one of the sons of John H. Leighton, became one of the company's most expert engravers.

For this information about the family we are indebted to Mr. John H. Leighton of Weymouth, Mass., great-grandson of the first Thomas Leighton. When a small boy between six and twelve years of age he made frequent visits to the glass factory in company with his grandfather, John H. Leighton. These visits were likely to take place on Sunday afternoons, during the weekly recess, when the gaffer made a habit of sampling the batches by taking a little of the mixture out of each pot and allowing it to cool on the window-sill of his office. After his grandfather's death in 1879, Mr. Leighton lived with his grandmother, who often spent whole evenings telling him stories about the factory.

Not long after he became superintendent of the New England in 1826 Thomas Leighton wrote a letter to a young man in Edinboro saying that the prospects were

Plate 74 *Mr. Thomas Leighton, Jr.*

Early Photograph of John H. Leighton and His Family

good for a glass-worker in Cambridge, and advising him to come over on condition that he were sober and industrious. This young man, George Dale, with his twin brother, Robert, came to the New England Glass Co. in 1829. He was then twenty years old, and had been in the business since he was thirteen, having been apprenticed at that age to one Bailey of Edinboro. A letter from his mother in that year says that the glass business was slow in the old country, so no doubt that is the reason why the younger workmen turned their faces towards the newer land of opportunity. Mr. Dale became one of the company's finest glass-blowers, and the gaffer of a shop. The blown pieces now in the possession of Mrs. Barker were his work, and the loving cup in the frontispiece was presented to him by his fellow employees on the occasion of his marriage. Wedding presents of some kind were invariably forthcoming when any of the glass-workers were married. A gift of a dozen wine-glasses was a customary one.

As in every glass factory, it was the custom at the New England to allow the men free use of materials when they wished to make presentation pieces for their families or their friends. Almost every glass-worker's family has canes, bellows, balls, or paper-weights designed to show off the blower's skill. The writer has seen balls in black, light green, striped rose and white, and silver glass, canes in opaque and clear white, and silver glass, and bellows in rose and white. The blowers and cutters often exchanged work; the blowers made objects for the cutters to finish into gifts, and they in turn decorated the blowers' presentation pieces. Such trifles as cigarette-holders, seals, book paper-weights, knife rests, and so on, were fashioned in this way. Unusual things, such as the loving cup of

Plate 73

Mrs. W. D. Barker

Group of Ruby Glass with Clear Bases, c. 1850

Plate 76 *Mrs. Damon E. Hall*

PRESENTATION PIECES

a. Shakespeare Club goblet *b.* Bank

the Shakespeare Club and the bank in Plate 76 are sometimes found. They are of course in no way typical of the New England product, except for the quality of the glass itself, and might have been made anywhere. The engravers frequently marked their presentation pieces with the name or date, and many families today can show toilet bottles, decanters, or tableware so decorated.

Mr. Carter recalls some interesting little objects called "flip-flops" that his father made for the children. They were shaped like funnels, covered over at the large end with a very, very, thin film of glass. The boys produced a whistling sound by blowing in at the small end, their breath forcing the thin film in and out: hence the name "flip-flop." Too strong a breath would break them.

Mr. Leighton was always glad to have the men amuse themselves by making toys and gifts, but the privilege was abused. Some of the blowers carried away quantities of things and sold them outside for their own profit, so that it became necessary to place restrictions on private work.

One of the early glass-cutters was Joseph Burdakin, who was born in 1813, and went to work for the New England Glass Co. in 1827. Nearly all his life he was a cutter and for part of it at least he was a foreman. At the time of his fiftieth wedding anniversary in 1885, he had been in the employ of the company for more than fifty-eight years. One of the earliest authenticated pieces of New England cut glass was from his hand — the little smelling-bottle in Plate 29.

Mr. Burdakin's daughter Hannah married Henry S. Fillebrown, an engraver of glassware, who had received his training as a boy at the New England. He

was born in 1839 and must have begun his career in the early fifties. Henry Fillebrown was one of the most skillful engravers that this country has ever seen. He was an artist and made his own designs. Many of them were too elaborate to be possible commercially, but his ingenuity was allowed to expand in the pieces that were decorated as gifts to his family. At the time when the company was having difficulties in the seventies he went to Meriden, Connecticut, but returned later to Cambridge.

The name of François, or Frank, Pierre has been mentioned in connection with the manufacture of paper-weights. He was so well-known in Cambridge for his remarkable skill as a fancy glass blower that no story of the New England workmen would be complete without a few words about him, although he spent only a portion of his time with that company. Mr. Pierre was born about 1834, and as early as 1849 he was registered in the *Cambridge Directory* as a fancy glass worker. He had received his training as a blower in his native country, France. At certain seasons Mr. Pierre made paper-weights for the New England Glass Co., but his health was not good, and during the winter months he traveled with a group of glass-blowers to the tropics giving exhibitions.

At these exhibitions the blowers fashioned the glass birds and ships, with decorations of spun glass, that were so often to be found in homes of the Victorian era displayed under a glass dome on the center table or the mantelpiece. Spun glass was adaptable to many purposes. Mr. Pierre's daughter recalls how she braided bands of it for a head-dress when she went to a party. It was formed by actual spinning from a rod of glass bent double with both ends in the flame of the " lamp."

The thread was wound about a wheel until a broad band of the soft silky substance appeared.

Another curiosity displayed by the traveling glass-blowers was a steam engine made entirely of glass, and it was Mr. Pierre's duty to demonstrate it to the admiring public. This was doubtless the one described by Deming Jarves:

" The Scientific American states, ' The troop of glass-blowers at Hope Chapel furnish a very interesting evening's entertainment for those who are fond of practical things. A steam-engine, most beautifully constructed of different colored glass, is worked by steam all the time. The nature of the material affords an opportunity to see all the several parts moving at once, and it is really a very curious sight, even to an engineer, and one that will well repay a visit.' "

A glass steam engine was also exhibited in Boston by Woodruffe & Bros. at the New England Inventors' and Mechanics' Industrial Exhibition in 1855.

Mr. Pierre had a considerable knowledge of the making and mixing of glass, and during his journeyings he was occasionally called as an expert to factories where something had gone wrong with the batch. With Thomas Leighton, Sr., he was instrumental in starting the Boston Flint Glass Works in Cambridge. Mr. Pierre died in the early seventies at the age of thirty-eight.

Many other names come to mind of those whose life histories were interwoven with the records of the company — men who left a reputation for their skill in blowing, like Andrew Long, Adam Winlo, and Patrick Sullivan, or men who have figured at the head of the cutting and engraving departments, such as John Lowry, and Louis Vaupel. The work of some of them has been described in other chapters. A list which may

be helpful to later investigators is here appended of workmen known to have been employed at the New England before 1855, with the date when they went to work there. It includes also a number of names verified from the list of glass-workers in the *Cambridge Directory* for 1851, all of which cannot be used, as the Bay State Glass Co. was in existence at that time. Where no further information is at hand the letter D is used to indicate the presence of the name in the directory. It would be possible to secure later lists in the same way, but there is little point in doing so.

Workmen Known to Have Been at the New England up to 1855

John L. Hobbs, Cutter — early 20's. Foreman cutting department — 1825
Thomas Leighton, Gaffer — 1826–1849
William Leighton
John H. Leighton, Blower — 1827. Gaffer — 1849–1874
James Leighton, Machinist — 1827
Thomas Leighton, II, Chemical glass blower — 1827
Peter Leighton, Table glass blower — 1827
Robert E. Leighton, Table glass blower — 1827
Oliver T. Leighton, Cutter — D
George Dale, Blower — 1829
Robert Dale, 1829
Joseph Burdakin, Cutter — 1831 to end of factory. Foreman in later years
François Pierre, Fancy glass blower — 1849
Albert Putney, Presser before 1850
Daniel Putney, Presser before 1850
Sylvester Putney, Presser before 1850

John Lowry, Cutter — 1850. Foreman cutting department in 70's and 80's
William Carter, Maker — D
George Carter, Blower — 1855
Andrew Long, Blower — 1851
John Brooks, Blower — D
Isaac Fessenden, Blower — D
Samuel Fillebrown, Cutter — D
Henry Fillebrown, Engraver — 1855
Thomas Hopkins, Blower (jewelry glass) — D
William Hopkins
John Hopkins
John Marsh, Maker — D
John McFeeley, Maker — D
Joseph Moran, Blower — D
Thomas Robinson — D
Benjamin Sargent, Presser — D
Samuel Segar, Maker — D
Patrick Sullivan, Blower — D
Robert P. Tuten, Foreman cutting department — D
Adam Winlo, Blower — D
Joseph Bourne, Blower — 1855. Gaffer under Mr. Libbey

AGENTS AND AGENCIES

THE "agent" of a glass company may be the general or business manager at the works or he may be a salesman in some other city. In the case of Deming Jarves, he superintended the actual glass-making as well. After the era of the versatile Jarves, the agent was business manager only, and a "gaffer" was engaged as factory foreman.

Little if any retail business was done by the New England, the glass being sold at wholesale from the showroom at the factory or from the Boston agent's headquarters. By means of the Boston directories and almanacs it has been possible to learn with some degree of accuracy the list of the company's Boston agents and their offices.

Jarves was succeeded in Cambridge by Henry Whitney, who governed that end of the sales department until 1843. At the same time Joseph Wing became the Boston agent, with offices at 140 Washington St. He had been a member of the firm of Wing & Sumner, dealers in crockery and glassware at 3 Smith Row, but he severed this connection to work for the New England, where he remained for four years.

In 1829 Joseph H. Lord succeeded to the position, with his office at the same address. This was the company's headquarters until 1840, when the salesrooms were removed to 9 Doane St. In 1843 Mr. Lord left to become agent of the Phoenix Glass Works of South Boston. The following year Joseph N. Howe, Jr., who

had just been made general manager at Cambridge, took over the Boston offices at 97½ State St. in association with John A. Preston, who had been connected with business for some time previously. In 1849 the warerooms were moved to the old Sun Tavern Building at 45 Batterymarch St. — a location that was retained for twenty-two years.

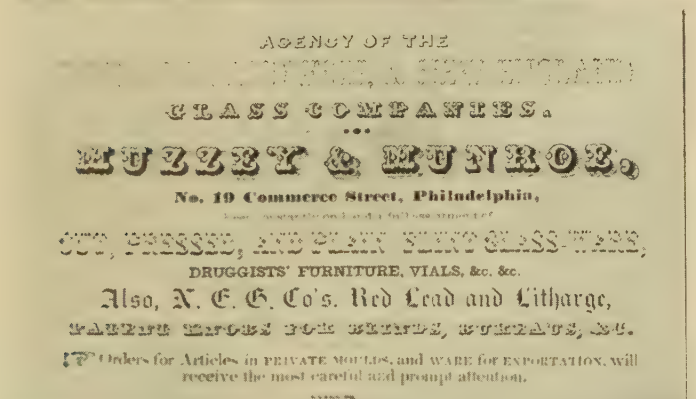
Meanwhile Henry Whitney, Jr., became agent in 1865, and he held the office until the arrival of Mr. Libbey in 1872. During the next twelve years the Boston offices were moved no less than five times. From 1876 to 1880 the New England agency was in the office of William H. Munroe, who, as treasurer of the company, remained after Mr. Libbey leased the works in order to close the business. The last address was 155 Franklin St.

With the gradual expansion of the company, agencies were opened in other cities and the glass shipped all over the country. As early as 1832 their glass was being sold in New York, Philadelphia, and Baltimore. The *American Advertising Directory* for that year has the following paragraph:

"New England Glass Company, Manufacturers of every description of Cut, Plain, and Pressed Glass Ware, including Stained, Engraved, Gilded, and every other kind of Ornamented Table Ware, Stained and Obscured Window Glass, Patent Cut and Plain Glass Furniture Knobs, &c, &c. Agents — at the Factory, Henry Whitney; Philadelphia, Henry M. Muzzy; Baltimore, James H. Maston; New York, Thomas D. Moore."

Henry M. Muzzy was a nephew of Edmund H. Munroe, being the son of a Congregational minister of

Sullivan, N. H., and Mr. Munroe's sister Anna. He had come down from the country to seek his fortune, and his uncle had put him to work in the glass business. Young Muzzy was energetic and ambitious, and after a time he was sent to Philadelphia as the New England agent there. He lacked one qualification, however — the personality adapted for meeting people and creating good will. Accordingly, his cousin, William H. Munroe,


AGENCY OF THE

GLASS COMPANIES.

MUZZY & MUNROE,

No. 19 Commerce Street, Philadelphia,

CUT, PRESSED, AND PLAIN FLINT GLASS-WARE,

DRUGGISTS' FURNITURE, VIALS, &c. &c.

Also, N. E. G. Co's. Red Lead and Litharge,

PATENT KNOBS FOR DOORS, BUREAUS, &C.

☞ Orders for Articles in PRIVATE MOULDS, and WARE for EXPORTATION, will receive the most careful and prompt attention.

Plate 77 *Lexington Historical Society*

Business Card, *c.* 1850

was sent to join him, and to take care of that part of the business. The agency was conducted at 19 Commerce St. It is interesting to note in the business card reproduced in Plate 77 that they were also agents for the Boston and Sandwich Glass Co. This was probably in the forties or fifties, as the family history shows. They advertised: "Cut, Pressed, and Plain Flint Glass-Ware. Druggists' Furniture, Vials, &c. Also, N. E. G. Co.'s Red Lead and Litharge, Patent Knobs

for Blinds, Bureaus, &c." William H. Munroe continued his connection with the firm for many years, becoming its treasurer in 1876.

The presence of this agency in Philadelphia at such an early date — it was, no doubt, established *before* 1832 — accounts for the quantities of early pressed glass that have been found in that region. This fact has been noted in *Sandwich Glass,* by Mrs. Williams, who attributes it to the annual visitations of Pennsylvania Quakers to meetings held in Sandwich, Massachusetts. It is reasonable to suppose that the Sandwich agency is quite as early as the New England, since Mr. Munroe was interested in both concerns, and that the distribution of the glass took place in the usual manner.

In 1869 the Philadelphia office was at 608 Arch St. In a handbill of the company printed sometime in the seventies offices are listed at 165 Chambers St., New York, 728 Arch St., Philadelphia, 31 South Charles St., Baltimore, H. F. Marsh, San Francisco, and Lawton Bros., Havana, Cuba. A former book-keeper, who was employed by the New England at this period, says there was also an agency in Italy, and she remembers that large shipments were sent on consignment as far as Yokohama, Japan. In the eighties the New York salesrooms were at 38 Park Place and 33 Barclay St.

OTHER CAMBRIDGE FACTORIES

WHILE the New England Glass Co. and its manufactory always held the most prominent place in the industry in Cambridge, several other glass-works were organized in that town from time to time, and did a large business. So little has been recorded about these concerns that it may be of interest to give a resumé of the few facts known about them.

1. New England Crown Glass Co.

The New England Crown Glass Co. was an organization separate from the New England Glass Co., although intimately connected with it. No record of any incorporation exists, but it had buildings of its own erected on a neighboring lot of land, and an agent and manager apart from the parent company.

Crown glass is a superior quality of window glass, made without lead. It was formed in large circular plates or disks from which small panes were cut. It will be remembered that the New England Glass Co. was incorporated to make both flint and crown glass, and the early advertisements of the company list the things made of crown glass, such as skylights, and bow-window glass, along with their flint glass products. Just how this part of the manufacture came to be separated from the main business we do not know. It was incorporated by the founders of the parent company on February 4, 1824.

On April 1, 1824, the New England Crown Glass Co. bought a lot of land next to the flint glass factory from Amos Binney for $3626. This lot ran northwards from the intersection of North and Short Sts., then east, south, and east again to a point fifty feet distant from the west side of East or Dam St., thence to North St. and back to Short St. On April 28, of the following year, the company bought from Binney the remaining land between North and East Sts. and the waterfront for $4000.

In the *Evening Gazette* of January 28, 1825, three advertisements of the new company appear in the same column. The first is over the names of Loring and Kupfer, No. 2 Union St., who were also agents for the Boston, South Boston, and Chelmsford Crown Glass, and says:

NEW-ENGLAND
CROWN GLASS

of a superior quality Manufactured at the New Works at Lechmere Point.

The second says: " The New-England Crown Glass Company — have commenced the manufacture of Crown Glass, and offer it for sale at their Factory, at Lechmere Point, on reasonable terms," and is signed by Wm. Parmenter, Agent.

The last is inserted by Joseph Wing, who was then agent of the New England Glass Co., and reads as follows:

NEW-ENGLAND CROWN GLASS

Constantly on hand and for sale, (wholesale and retail), at the New-England Glass Company's Warehouse

No. 140 Washington-street.

Glass ground for transparent Slates, Studies and Partition Windows — Fan Lights cut to pattern — Coach Lights and lights for Pictures, fitted in — and Glass bent for circular or bow windows.

Dealers and purchasers are invited to call and examine the quality of this glass.

Boston, South Boston Crown and Chelmsford Window Glass, as above.

Orders left with the subscriber will receive immediate attention.

JOSEPH WING, *Agent.*

William Parmenter was a man of considerable prominence in Cambridge. Born in Boston in 1789, he received a business training with Pratt & Andrews, merchants, and was in business a few years. During the War of 1812, and for some years afterward, he was the chief clerk of Amos Binney, Navy Agent, who was one of the founders of the New England. In 1824 he moved to East Cambridge, upon his appointment as agent and manager of the Crown Glass Co., and he remained in that position until 1836. While a citizen of Cambridge he was made a selectman and was sent to the Massachusetts Legislature both as representative and senator. When he left the glass company he went as representative to Congress, where he served four terms. "He was a man of impressive bearing and presence, of intelligence and wide information,

conservative in opinions, cautious in judgment." It is also said that he was an excellent public speaker, and this fact may account for the verbosity of his advertisements.

An interesting example of efficiency as it was understood in those days is seen in the following notice, taken from the *Boston Commercial Gazette* of March 30, 1826:

THE NEW ENGLAND CROWN GLASS COMPANY

Have placed in the area of Merchant's Hall a Box for the reception of orders for Glass and Letters. Any letter or order deposited before 12 o'clock at noon will be received at the Factory before 1 o'clock P.M. and if deposited before 5 o'clock will be received at the Factory on the same evening. All orders will be promptly executed.

WM. PARMENTER, *Agent.*

In 1827 the manufacture of crown glass at the Boston, South Boston, and Chelmsford Works was discontinued, and the New England Crown Glass Co. was left alone on the field. These three factories were operated by the same group of men, and it seems likely that the new competitor may have forced the others out of business. When the tariff convention met in New York in 1831, the committee on glass reported that the New England Crown Glass Co. was the only factory of its kind in the United States except one just completed in New York. At that time the Cambridge factory had a capital of $150,000, and made crown window glass to the value of $100,000 a year. One furnace of six pots was in operation, giving employment to fifty-five men and boys. The sand used came from New Jersey.

In a long advertisement in the *Evening Gazette,* October 15, 1836, Mr. Parmenter enlarges upon the peculiar merits of the New England crown glass, and mentions a new furnace:

New England Crown Glass

The New-England Crown Glass Company have recently erected a new furnace and are manufacturing a first rate article. Their Crown Glass is thick, pure, and of an excellent color. Its thickness gives it an advantage over all thin glass, which is liable to crack from contraction in cold weather. Its surface not being polished after blown retains its enamel, brilliancy and hardness, and is not liable to the objection which applies to the Plate Glass, of being easily and permanently dimmed by dust.

The New-England Crown Glass being purer in color than any other Glass is preferable for stores, as it does not tinge the rays of light as they pass through it, and therefore white goods appear particularly to advantage, and it is peculiarly useful for Factories, as some minutes of light may be gained morning and evening, in consequence of the absence of color in the glass. The price of second quality is reduced from the rate heretofore asked.

Those who wish to contract for this Glass are requested to specify New-England Crown Glass. As much imposition has been practiced by dealers in glass, by deceptive marks on boxes and other artifices, any purchaser who may apprehend he has been imposed upon, is invited by letter or personally to apply to the subscriber for any information he may wish to enable him to detect the deception. Orders sent to the undersigned

at Boston or East Cambridge, or to any of the Company's Selling Agents will be promptly attended to.

Persons wishing the appointment of Selling Agent can apply to the subscriber by letter or otherwise.

WILLIAM PARMENTER

Agent N. E. C. Glass Co.

On June 17, of the following year announcement was made that the company had " taken the Chambers over the store of Messrs. Sumner & Hopkins in School St. corner of Washington — for wholesale and retail." They were making at that time four grades of glass: the first — N. E. No. I — was the best quality obtainable; the second — Cambridge No. I — was superior to the best German and other cylinder glass; the third — Cambridge No. II — was second quality, for factories, backs of buildings, etc.; and the fourth — an Extra quality — for front parlour windows. This advertisement was signed by J. S. Hastings, who was for many years a crockery and glass dealer in Boston. He continued to hold the agency until the factory closed.

In 1838 the Crown Glass Co. became insolvent. They had borrowed money from the Middlesex, Commonwealth, and Globe Banks to such an extent that the property itself, valued at about $12,000, was equal to only half the amount of their debt to the Middlesex Bank. According to a mortgage agreement the Middlesex took sole possession December 18, 1839. They disposed of the land to various purchasers, and the portion occupied by the manufactory was conveyed to the New England Glass Co. on January 31, 1842.

2. New England Glass Bottle Co.

Another factory closely connected with the New England Glass Co. was the New England Glass Bottle Co., incorporated by Deming Jarves and Edmund Munroe, February 15, 1826, (just one week before the incorporation of the Boston and Sandwich Glass Co.) "for the purpose of manufacturing black and green glass wares in the city of Boston and the town of Cambridge."

The land for the works was purchased from Edmund Munroe on December 28, 1826, for $4350. As described in the deed it had a frontage of 175 feet on the easterly side of South Third St., extending from the canal northeasterly to a certain passageway, thence eastward to a point in the Charles River, south to the canal, and so back to South Third St. The canal mentioned may still be seen near Main St., East Cambridge. At the present time it has stone walls, but the Fuller plan of Lechmere Point made in 1823 shows it to have been not much more than a dike or trench when the glass-house was built.

The factory was in existence for nineteen years, and there is every reason to believe that it was an important bottle works, and the source of some of our historical flasks. There is no trace of the industry in East Cambridge today except a strong local tradition that a bottle factory once stood near Spring St., and the neighborhood is still called "the bottle house."

Deming Jarves was the first agent, and it seems probable that both the New England and the Sandwich factories took care of their orders for black and green glass in this establishment. Two early advertisements

are of interest not only in connection with the bottle works, but for their mention of the Sandwich company. The first appeared in the *Boston Commercial Gazette* of March 5, 1827, and read as follows:

BLACK BOTTLES, &c.

50 groce heavy Porter Bottles
100 do. Wine Bottles
50 do. Pint Bottles
20 do. Oil Bottles
160 do. half pint and pint Pocket Bottles

The above are offered at factory prices, and any article in the Black Glass line will be made to pattern and on the most favorable terms, at the New-England Glass Bottle Works.

Also, packages of glass for exportation, together with an extensive assortment of Cut, Plain and Moulded Flint Glass Ware, manufactured by the Boston and Sandwich Glass Company, constantly for sale by Deming Jarves, No. 3, Phillips' Buildings.

The second, January 21, 1828, was in the same publication:

GLASS BOTTLES, &c.

300 gross best patented Porter and Wine Bottles
100 " " " pint Bottles
100 " " " qt. and 2 qt. Bottles

50 do. Acid 1 and 2 qt. Bottles stoppered — 50 do. Soda and Mead Bottles — 250 do. ½ pt. and qt. Flasks — 50 do. ½ pt. and pt. Blacking Bottles — 50 do. 6 and 8 Oz. round and octagon Ink Bottles — 20 do. pt. and gallon Preserve Jars — 20 do. ¼ to 1 lb. Mustard Squares

— 500 1 qt. to 7 gallon wickered Demijohns — 500 1 gal. to 12 gal. Carboys — 500 qt. and ½ gal. wickered Bottles.

The above named are manufactured at the New England Bottle Works and warranted of good quality. Orders addressed to the subscriber will receive immediate attention, and the goods delivered free of expense at any part of the city.

Also (by the package only) an extensive Assortment of plain and cut Flint Glass manufactured by the Boston and Sandwich Glass Co., comprising the usual variety made by similar establishments. Chandeliers plain and ornamented; Glass bent for Circular Windows roughened or obscured for Sky Lights. Likewise Glass for exportation put up at short notice, and Fire Bricks made to all dimensions — For sale by Deming Jarves, No. 88, Water street.

The following similar advertisement appearing ten days later is signed by Ralph Smith, Agt.:

WINE & PORTER BOTTLES, CARBOYS, DEMIJOHNS, &C.

The New-England Glass Bottle Co. respectfully inform the public that they have recently so far increased their manufactures as to enable them to offer for sale, a full assortment of Black Glass Ware, at

PRICES MUCH REDUCED

Now on hand — 500 gross of Wine and Porter Bottles — also, Demijohns, Carboys and Bottles of all the various sizes, from 1 qt. to 15 gal.

Blacking, Ink, Snuff, and Mustard Bottles, and Flasks, and every description of black or green Glass

Ware will be made to order at short notice and on favorable terms.

Orders addressed to the Agent at the manufactory, left at the store of Deming Jarves, 93 Water-street, A. J. Hall's, Milk-street, or at Edmund Munroe's office, Old State House, (at which places specimens of the ware may be seen), will meet with prompt attention.

RALPH SMITH, *Agt.*

The report of the committee on the manufacture of glass in 1832 mentions this concern as follows:

"The committee have not been informed of more than one manufactory of black glass bottles, carboys and demijohns;" (they were aware that several manufactorys of green bottles, demijohns, and apothecaries' ware and shop furniture existed) "this is near Boston, employing a capital of $50,000, and making 6000 groce of bottles annually, employing 65 men and boys."

This report says that the sand was procured from the seashore and most of the other materials from New England and New York. In 1828 and 1829 the company bought for small sums two lots of land, one at Fresh Pond, Cambridge, and the other in Lexington. These, too, may possibly have been sources of sand supply. Mr. Munroe's brother Jonas bought the Lexington land from the company in 1835 and the deed with Edmund Munroe's signature may still be seen at the Lexington Historical Society.

An advertisement in the *Boston Daily Advertiser* in June, 1834, gives the impression that the bottle house was producing large quantities of glass and doing a flourishing business:

BOTTLES, DEMIJOHNS, CARBOYS, &c.

700 gross Porter and Cider Bottles
500 " Wine
300 " Claret
300 " Green Syrup
5000 Demijohns, assorted sizes
5000 Carboys, " "

together with their usual assortment of other articles of black and green Glass, for sale on favorable terms, by the New England Glass Bottle Co.

RALPH SMITH, *Agt.*

Delivered in any part of the city or adjacent towns free of expense.

Orders sent to the Factory, East Cambridge, at their Warehouse, 99 Milk street, Boston, or deposited in their Order Box, 57, State street, Boston, will receive prompt attention.

The New England Glass Bottle Co. came to an end on May 7, 1845, when it deeded its original property to L. P. Grosvenor for the sum of $1700. At that time Mr. Andrew T. Hall, one of the founders of the Boston and Sandwich Glass Co., and later for many years treasurer of the New England Glass Co., was the president. The reasons for the closing of the works are unknown.

3. BAY STATE GLASS CO.

The Bay State Glass Co. came into existence just before 1849. It was not incorporated until 1857, but was run at first by Norman S. Cate & Co. The following

advertisement is from the *Cambridge Directory* of 1849:

BAY STATE GLASS WORKS
Factory, Corner of Bridge and N. Fourth Sts.
East Cambridge
Store, No. 20 Central Street, Boston
N. S. Cate & Co.

A general assortment of Flint Glass now in use, made and sold at the lowest prices, at wholesale.

Public patronage is respectfully solicited.

NORMAN S. CATE MASON TEASDALE
JACOB K. DUNHAM

The advertisement reproduced in Plate 78 showing a cut of the glass-works appeared in the *Boston Directory* in 1854.

In 1851 the style was Cate and Phillips, and upon the organization of the company Linas A. Phillips was made president and Cate treasurer. Amory Houghton, who had just founded the Union Glass Co. of Somerville, was one of the directors. The stock was limited to $30,000, and was divided into sixty shares among twenty-one stockholders.

Mr. Cate was the first agent; from 1855 until after the Civil War S. Slocomb represented the company at 44 Kilby St., Boston; and later Mr. E. W. Bettinson had charge of the sales department.

In 1869 the Bay State advertised a wide variety of glass. The following is copied from the *Cambridge Directory:*

BAY STATE GLASS COMPANY
East Cambridge Mass.
Salesroom, 54 Kilby St. Boston
Manufacture and keep constantly on hand
Plain, Moulded and Cut
Flint Glass Ware
In all its varieties; also all kinds of
Apothecaries', Chemical, and Philosophical Glass Ware
Kerosene Lamps and Lanterns
Silvered Glass Reflectors
Lamp Chimney Brushes, &.

E. W. BETTINSON

Engraving on glass done with Neatness and Despatch.

A gentleman who remembers this factory says that the Bay State made blown goods, particularly chemical and railroad supplies, bottles and cane, and some pressed glass. The quality of their glass was good, although the concern was a small one as compared with the New England Glass Co.

At a meeting of the stockholders of the company, held in February, 1873, it was voted to authorize the directors to dispose of the property. This they did May 1, 1874, selling land and buildings to John P. Squires of Arlington and Wm. W. Kimball of Boston, for $45,000. The manufacture in some form seems to have continued after this for a time. In 1877 the Bay State advertised in the *Boston Directory:* "Oakman's Patent Screw-Capped Carboys and Demijohns"; but this must have been the last year of operation.

BAY STATE GLASS COMPANY,
BAY STATE GLASS WORKS.
EAST CAMBRIDGE, MASS.
Having Two Furnaces in full operation, are making and will furnish to the Trade all kinds of FLINT GLASS WARE now in use, by the package as cheap as can be purchased elsewhere.
We respectfully invite DEALERS OF GLASS WARE to give us a call and examine our samples and prices at the Factory, East Cambridge, or at
Warehouse, 44 Kilby St., Boston.
N. S. CATE, AGENT.

Plate 78

ADVERTISEMENT FROM THE *Boston Directory* OF 1854

4. BOSTON FLINT GLASS WORKS

For a short time there was in East Cambridge a glass factory known as the Boston Flint Glass Works. It was founded by the first Thomas Leighton, and managed by his son John H. Leighton, and stood where the Lowell Railroad crossed the Fitchburg tracks. An advertisement in the *Boston Directory* of 1867 read as follows:

BOSTON FLINT GLASS WORKS
manufacture all kinds of
Druggists', Chemical, and Table Ware
Kerosene Lamps and Fixtures, Lanterns for Ships and Railroad use; also a large variety of Ink Stands, Sponge Cups, Fancy and Plain Glass Paper Weights
Store, 72 Kilby St. Boston
Factory at East Cambridge, Mass.
WYMAN & DENNISON
C. F. WYMAN — R. H. DEMMON — FRANK PIERRE — THOMAS LEIGHTON

Unfortunately the treasurer mishandled the funds and this venture was a failure. The factory was locally known as "The Comique."

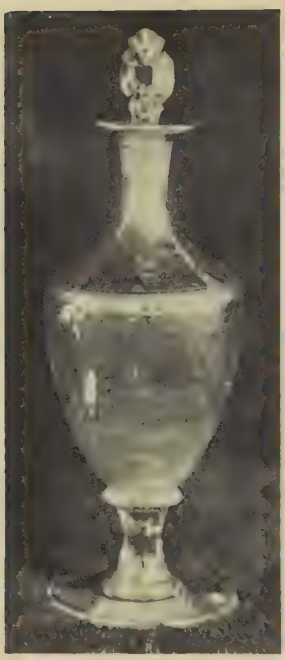
It has been impossible to discover whether this concern bore any relation to the Boston Flint Glass Co., incorporated in 1830 by Edward A. Pearson, a State St. broker, and Levi Farwell.

In 1859 the Boston Glass Co. had an agency at 97 Water St.

5. BOSTON SILVER GLASS CO.

The Boston Silver Glass Co. was doing business as early as 1857, with an agency in the name of A. E. Young at 95 Water St. They made both silvered and flint glass ware during the period when mercury glass was most fashionable. In 1868 the *Cambridge Directory* contained their advertisement:

BOSTON SILVER GLASS CO.
manufacturers of
Silvered
and
Flint Glass Ware



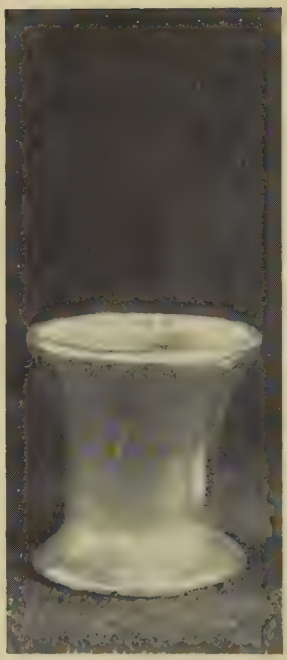


Plate 79

Mrs. Damon E. Hall
Mrs. W. D. Barker

SILVER GLASS MADE AT THE NEW ENGLAND GLASS CO.

Plate 80

Mr. Sylvanus L. Fillebrown

a. Engraved silver glass salts, "April 5th 1860"
b. Engraved vase of opaque rose over opaque white

Reflectors, Curtain Pins, Door Knobs, Table Ware and Fancy Articles, Patent Glass Castors, Reflector and Ship Lanterns, Lamps, Brackets, etc.

Lamp Chimneys, Table Ware and flint glass goods

Salesrooms

121 Milk St. Boston

Factory

at Broadway, Cambridgeport, Mass.

A. E. YOUNG J. W. HAINES

YOUNG, HAINES, & DYER, *Proprietors*

The company was still in existence in 1871, with R. T. Lombard & Co., agents, at 51 Water St.

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LURA WOODSIDE WATKINS

began writing about antiques in 1925 for the *Boston Evening Transcript.* Since then she has contributed to *The Antiquarian,* the *American Collector* and *Antiques.* Mrs. Watkins is the author of three books in addition to CAMBRIDGE GLASS: *The Development of American Glassmaking, American Glass and Glassmaking* and *Early New England Potters and Their Wares.* Besides writing about antiques, the author is active in the National Early American Glass Club and the Society for the Preservation of Covered Bridges, and is a director of the Society for the Preservation of New England Antiquities. She is also a member of the Art Association of Winchester, Massachusetts, where she now lives.

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419 Park Ave. So., New York 10016

From the Foreword to

Cambridge Glass

by Lura Woodside Watkins

"Mrs. Watkins's careful study . . . will assuredly serve to re-establish the historical position of the New England Glass Company. It will also aid, to a considerable extent, in identifying many specimens of the Company's product. I am satisfied that the result will prove indispensable alike to the industrial historian and to the collector and student of American glass."

HOMER EATON KEYES